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1910

Water C[illegible]ing on Motor Bicycle Engines.

THE MOTOR CYCLE

1D

No. 354. Vol. 8. MONDAY, JANUARY 3rd, 1910. Price 1d.
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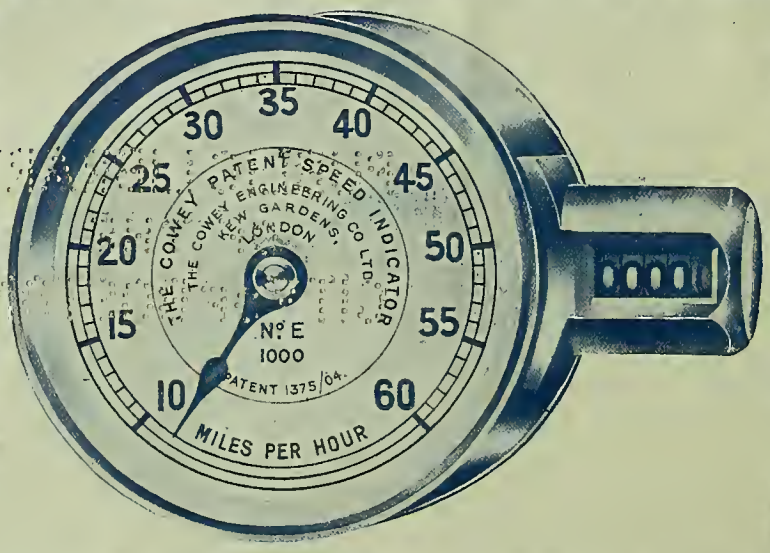

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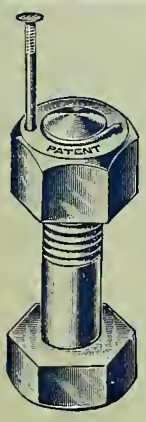

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THE MOTOR CYCLE

Vol. 8. No. 354. Jan. 3rd, 1910.

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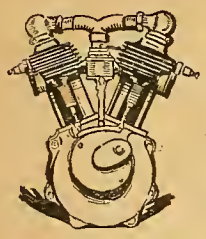
Quarterly Trials Regulations.

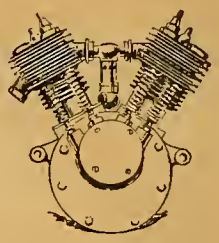
ONE of the clauses in the A.C.U. Quarterly Trials regulations will have probably caused as much wonderment to many of our readers as it has to ourselves, and its wisdom is certainly open to much question. We refer to the regulation which states: "A participant may not stop under any circumstances except at the bottom of Dashwood Hill and Rectory Hill, Amersham." As is well known, these two ascents are the ones on which competitors are observed and marks awarded for the hill-climbing capabilities of their machines. Consequently it is the more surprising that they are permitted to halt at the foot of these test hills *and cool the engines*. The object of stopping the riders is to enable the officials to send them up the hill singly and at fairly long intervals, so that, should traffic be prevalent or should a competitor find he was obliged to overtake and pass another on the gradient, he cannot complain that he was hindered or otherwise hampered in his ascent. This is all very well, but the same effect could be obtained in various other ways, such as by stopping the participants two miles from the foot of the hill, restarting them at intervals with instructions to proceed at legal limit speed, and forbidding a competitor to overtake the rider in front under penalty of disqualification. But to stop competitors in a 1910 motor cycle trial at the foot of two such comparatively easy gradients as Dashwood and Amersham, and then despatch them with cool engines, and call it a test of hill-climbing, is surely a mild form of slight to the wonderful hill-climbing abilities of present day motor cycles. If in touring, motor cyclists were content to dismount and allow their engines to cool before climbing hills of the calibre of Dashwood and Amersham one would have less cause for criticism, but the hills are little above the ordinary, and any machine which cannot surmount them with a *hot engine*—that is, after a non-stop run of several miles—is hardly deserving of the designation "present day motor bicycle." After all, motor cyclists particularly want to know if a machine is a good hill-climber when the engine is hot, as it is not every engine that will keep cool and continue to pull on a long gradient.

If the quarterly trials are to serve the useful purpose for which they were started, they must weed out the weaklings. At present the full distance of the day's run is but 125 miles, and how many genuine tourists are there who are satisfied with such a run, which represents six hours' riding at legal limit speed? And how many prospective buyers would order a motor bicycle on the strength of a single performance in one of these trials? Some of the competitors have to travel over double the distance to compete in the trial. No, the conditions generally are much too easy at this advanced stage of the pastime, and unless the trial is made more difficult by compelling competitors to commence the two climbs with hot engines we fail to see how manufacturers can regard a first-class certificate as much of a feather in their caps. We are entirely in accord with the new method of awarding a maximum of 200 marks, and are convinced that the classification under the different headings will be productive of much good.



TUNING UP.

Particularly applied to V type Engines.



IT is generally supposed that phenomenal performances obtained on twin-cylinder machines are due to illicit treatment, if I may term it such—for example, specially-constructed engines, special fuels, the use of picric acid, etc. This may have been the case, but it is undoubtedly possible to obtain a very much higher efficiency from a twin cylinder than is usually the case with the majority of such engines as normally fitted to motor cycles.

I propose to point out how this high efficiency can be obtained, and results achieved almost on a parallel with those obtained in the important hill climbs. A great many of the following remarks are applicable to single-cylinder engines, and the tuning up of petrol engines generally, but they apply more particularly to twin-cylinder engines.

"Tuning up" in the eyes of many consists merely in the grinding in of the exhaust valves, trimming up of the contacts and cleaning the carburetter. True these are the most important items in tuning up, but they can be done in different ways, some of which are right, but many are wrong.

Dealing first with the mechanical parts of the machine, it is necessary to see that the road wheels revolve perfectly free, that they "track," and that the brakes do not rub. If the machine is fitted with a band brake or a hub brake, it must be adjusted until the wheel will revolve freely. These simple parts are frequently overlooked.

Removing Carbon Deposits.

The cylinder or cylinders should then be taken off, the piston head scraped of all deposit, and polished as far as possible, as the deposit will not adhere so readily to a polished surface as to a rough one. The carbon deposit should be removed from the cylinder heads at the same time. For this purpose a screwdriver is probably as useful as anything. Some chemicals will remove it, but I have not tried them. If the deposit has set hard it will come away easily if it is first soaked with oil. For the piston head I find a knife is as good as anything. The deposit should be removed not only from the combustion chamber, but also from the valve chamber, and the whole left as clean as when new. Now the cylinder is off, the piston rings should be examined. If they are not bright all round, or nearly so, they should be removed and new ones inserted. There should not be much shake vertically of each ring in its groove, and it should be sufficiently elastic to exert a pressure on the cylinder wall. It should be noted that the ends of the ring, when it is compressed to fit the cylinder, should have about $\frac{1}{32}$ of an inch gap, the amount varies with the size of the piston, but if there is not some clearance the ring will bind when engine gets hot. The rings should then be spaced out so that their cuts are as far apart as possible.

Whilst the cylinder is removed both valves should be ground in, this work being much easier with the cylinder off the machine than on. In grinding in a valve it is advisable to use an excess of oil or paraffin rather than an excess of emery, and the pressure should be but moderate. Nothing is gained by excess of pressure or any excess of emery. The result generally is to score the face of the valve. Personally, I use a carpenter's brace and screwdriver bit. Underneath the head of the exhaust valve I place a spring, which just lifts the valve clear of its seat when the pressure is released, but allows it to be pressed down on to the seat. After spinning around the valve, or oscillating it, the pressure should be removed, allowing the valve to come off its seat. The valve should then be turned through a small angle and the grinding resumed. This allows the emery and oil to continue spreading over the faces, as of course under pressure they are forced out.

The Much Neglected Inlet Valve.

The grinding should be continued until the faces show clean all round, and this applies to the much-neglected inlet valve as well as the exhaust valve. The inlet valve rarely requires grinding, but is generally neglected, and on examination it is often found to be in a state that would account for considerable loss of power.

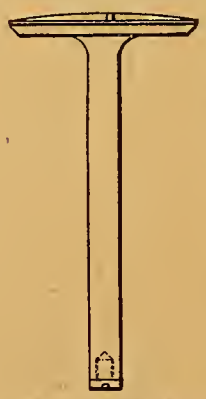


Fig. 1.—A simple method of lengthening a valve stem.

Before replacing the valves, the stems at the points where they pass through their guides should be rubbed with block blacklead so as to lubricate this part. Before the cylinder is replaced the crank chamber should be washed out with paraffin and refilled with oil to the right extent, and the cylinder, the piston rings, and cylinder walls should be lubricated.

The cylinders can now be replaced, and the clearance between the valve stems and tappets should be noted. The space should be as little as possible. If there be no clearance, the valve, when heated, will expand, and be held off its seat slightly at times when it should be seated, and thus the cylinder will lose compression. If there is too little clearance, the remedy is naturally to file a little from the valve stem. If there is too great clearance, either a new valve can be used, or a hole can be drilled and tapped in the end of the valve stem and a small screw inserted in the end, as shown in fig. 1. This screw can either be brazed or not, though personally I have found screwing in quite satisfactory. The head of this screw should then be filed down as required.

Tuning Up.—

With automatic inlet valves it is essential to see that the springs of the two valves are at the same tension. The method of doing this is shown in fig. 2. By holding the valve seats in the fingers and bringing the stems together, the two valves will be forced off their seats, that with the weaker spring being forced further open and opening sooner than that with the stronger spring. In the drawing the valve on the right is shown with the weaker spring to demonstrate this. If the engine is required to develop high power at low speeds the valve spring should be relatively weak, but a weak valve spring will not allow the engine to run at its maximum number of revolutions. If a high speed is expected from the engine, then strong valve springs should be used, and only a small opening.

The exhaust valve springs should be sufficiently strong to close the valve quickly, and should exert sufficient tension when the valve is shut to prevent the valve being sucked open when the engine is throttled down very much. Some springs are just sufficiently strong to seat the valves, but as they are compressed a few thousand times a minute for some months they naturally shrink slightly, and only hold the valve gently on its seat, and the valve is liable to be sucked open. Exhaust valve springs are cheap, and it is very important that new ones should be fitted when the engine is being tuned up at the beginning of each season, or before an important event.

In addition to the above the carburetter and silencers should be removed, which generally is an essential in order to take down the cylinders. The carburetter should be thoroughly cleaned, and any gauzes used should be cleared. If the carburetter is of the Longuemare type, it should be examined to ascertain the petrol level. The carburetter should be placed in position on the machine at the level at which it is normally fixed. The jet should be unscrewed, and the petrol turned on. The petrol will be seen to rise in the jet orifice, and will stop as soon as cut off by the float. Very often this point of cut-off is below the flared mouth of the tube. The petrol level should always be just on the flared or conical portion, otherwise capillary attraction will not take place, and difficult starting will be the result. To raise the level, a washer can be placed upon the float. If no advantage is derived from this, the washer can, of course, be easily removed. I state this because many carburetters, under vibration, have a higher level when running than when standing.

In the case of single jet carburetters it is advisable to obtain a dummy jet to check the level of the petrol. This dummy jet is the same height as the ordinary one, but larger in diameter, and bored out at the top to the full width of the tube.

An Important Point.

Now we come to the important subject of the size of jet in relation to the air passage past it, and this is one of the most important considerations, and is generally neglected by the ordinary user.

It is generally understood that the petrol is sucked from the jet by the air passing it. Normally, the quicker the air passes, the more petrol is taken up. To obtain more petrol, one can either make the jet bigger or the air passage smaller. By making it small, we increase the velocity of the air passing the jet, and increase the "suction," causing more petrol to be drawn out. It is advisable to use as large a choke tube or air passage as possible, and adapt the jet to it. The majority of Longuemare carburetters on the market are limited in the size of their choke tube, but in some cases the recess, into which the choke tube fits, can be bored out to take a larger one, and a larger jet can be correspondingly fitted. In any case, it is important that the air passage should be as large as possible compatible with ease of starting. I therefore suggest the fitting of the largest choke tube supplied with the carburetter, and, if the machine will not start easily or run slowly without flooding, fit a larger jet. If the largest jet supplied will not give the desired result, an extra cut can be made in the jet with the tip of a knife blade, if the blade is sufficiently pointed. The rider should then run his machine at the highest speed possible, opening up his air, and if at some speed short of the maximum, it will take all the extra air supplied with the throttle fully open, the extra air inlet should be enlarged, or an additional air inlet between the throttle and the carburetter be fitted. The possibility of supplying sufficient air at high speeds is very important in obtaining maximum efficiency, and to prevent what is called "overheating."

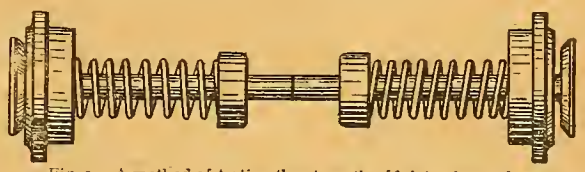


Fig. 2.—A method of testing the strength of inlet valve springs.

The silencer before being replaced should be taken down and cleared. This has to be done by a brush, as there is no solution known that will remove soot. Scouring the silencer will assist in preventing the deposit, but will not prevent it altogether.

Testing the Ignition.

Assuming the machine to be now assembled, it is necessary to test the ignition and tune it up. If the contact-breaker is of the wipe type, it should be cleared of all oil and lubricant. As a rule, the current has to find its way from the metal segment or segments of the contact-breaker to the "earth" through some moving part. If a wire can be fitted to conduct the current, a great advantage will be noticed at high speeds. If the contact-breaker is of the make and break type, as it should be to obtain the best results, a wire led from one contact blade screw to the crank chamber will effect this. I advocate a plain make and break contact-breaker, because the points are renewable, and because a non-trembler coil can be used. As twin-cylinder engines and most motor cycle engines are required to run over 2,000 revolutions per minute, it is essential to eliminate anything that causes any delay or uncertainty in firing. Most coil tremblers do delay or are uncertain at high speeds. Personally, I use a non-trembler coil and plain make and break, and have naturally found that the engine will run faster with this and fire better at high speeds than with a trembler coil. The contacts should be filed flat, and should be removed to do this, to see that the rivets are quite tight. A rivet that is slightly slack in a spring or blade will cause erratic firing, which is extremely difficult to locate.

Now comes the most important part—that of synchronising. For this purpose I use the implement

Tuning Up.—

shown in fig. 3, which I call a tuning fork. It consists of a wooden handle with a metal fork let into it. The sides of this fork are of unequal length for convenience in handling. An ordinary screwdriver will effect the purpose, but the tuning fork shown is easier to use.

The engine should be run slowly on the stand and the tuning fork held with one prong on the insulated terminal of the sparking plug and the other on the cylinder. This short circuits that particular cylinder, and the current travels from the insulated terminal of the sparking plug, along the tuning fork, and to earth *viâ* the cylinder. Care should be taken to hold the fork firmly against the sparking plug and the cylinder, as any joggling may cause the short circuited plug to cut in temporarily.

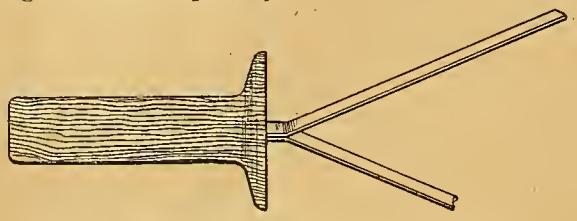


Fig. 3.—A tuning fork for testing the synchronisation of the firing.

The engine now runs on one cylinder, and its speed can be roughly estimated by the beats of the exhaust. When the engine has had time to settle down to a steady speed, and this speed is noted, the tuning fork should be moved quickly over to the other cylinder so as to cut out the other plug. The second cylinder now runs alone, and its speed can be noted. In all probability it will be found that one cylinder will not run at all at low speeds, or, if it does, it will run slower than its fellow. The platinum contacts on this cylinder must, therefore, be adjusted to operate earlier or later, as the case may be. To speed up any cylinder that runs slowly the contacts should be slacked off if a non-trembler coil is used, and adjusted closer together with a trembler coil.

Perhaps one comes to the end of one's adjustment without effecting the desired result, and, of course, the reverse operation should be performed on the contact for the other cylinder. By carefully adjusting these contacts the cylinders will be found to fire quite evenly. They should be tested at varying speeds, and, if possible, on the road. The tuning fork enables this to be done quite easily, as one can bend down and cut out either plug with the engine under load, which gives a better result than a standing test. There are also special sparking plug switches for effecting this.

Immediate Perfection Must Not be Expected.

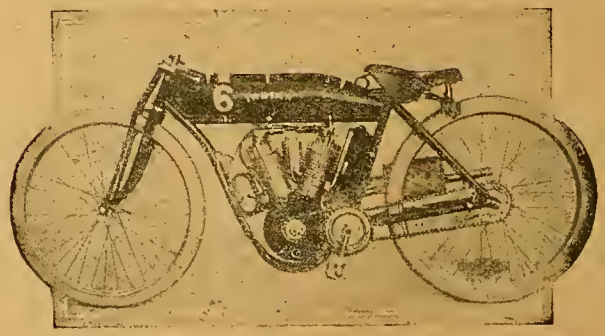
I have purposely mentioned the synchronising last, and it should be carried out after everything else has been done, and the cylinders should be tested again for even firing after running about fifty miles. As the valves have been ground in, the engine will not, as a rule, give its normal compression till it has run some little distance, and as the compression may be better in one cylinder than the other, it will affect the synchronisation. By keeping the synchronisation till last it compensates for any differences between the two cylinders.

The above remarks apply to machines fitted with accumulator ignition. With magneto ignition the necessity for this electrical adjustment does not arise, as the firing of the two cylinders is set correctly in the magneto, and seldom gets out of order, say, in less than twelve months' continual use. Even then the only renewals required are new contacts and perhaps new cams. It is necessary, however, for the magneto to receive attention, and this will be described in connection with a Bosch D.A.V. machine.

Adjusting and Timing the Magneto.

The contact breaker should be removed by removing the central screw which holds it to the armature spindle. When removed the contacts can be thoroughly examined and if necessary trimmed. The contact breaker can then be replaced, care being taken to see that the spring contact or brush at the back of the base plate is in place, and that the central screw is screwed up tight. The bearings should be oiled and the high tension brushes removed, examined, and wiped. It will generally be found that even this small amount of attention is not necessary, as these magnetos perform continuous service with hardly any attention at all. It is, however, important to see that the timing of the magneto is correct, and particulars of this can be obtained from the handbooks issued by the makers of the particular magneto fitted. A little experimental adjusting of the magneto timing one way or the other will be beneficial. For this purpose a reliable speed indicator is of considerable service in order to ascertain the effect of slight changes in the timing.

It is hardly within the scope for an article with this title to refer to gear, but I may be pardoned for doing so. It is generally the case that a machine is geared too high for hill-climbing, usually because the engine will not run above, say, 1,800 or 2,000 revolutions per minute. If tuned up as I suggest, and fitted with a good make and break contact with plenty of advance or a magneto, the engine can be run up to and well over 2,000 revolutions per minute, enabling a lower



The first 7 h.p. twin-cylinder Indian to arrive in this country. We referred to it last week as having been seen at Brooklands. As will be observed, it is a larger replica of the now famous 5 h.p. model.

gear to be fitted and better work to be got out of the engine all round. On the steep parts of a hill the engine speed does not fall below 1,800, whilst on the easier portions it will be running at its maximum speed, enabling practically full power to be got out of the machine on all gradients.

The machines used in many of the important hill-climbs may, in some cases, have been "faked" in various ways, but it is astonishing what a lot can be done by a general tuning up on the lines suggested.

ERIC W. WALFORD.

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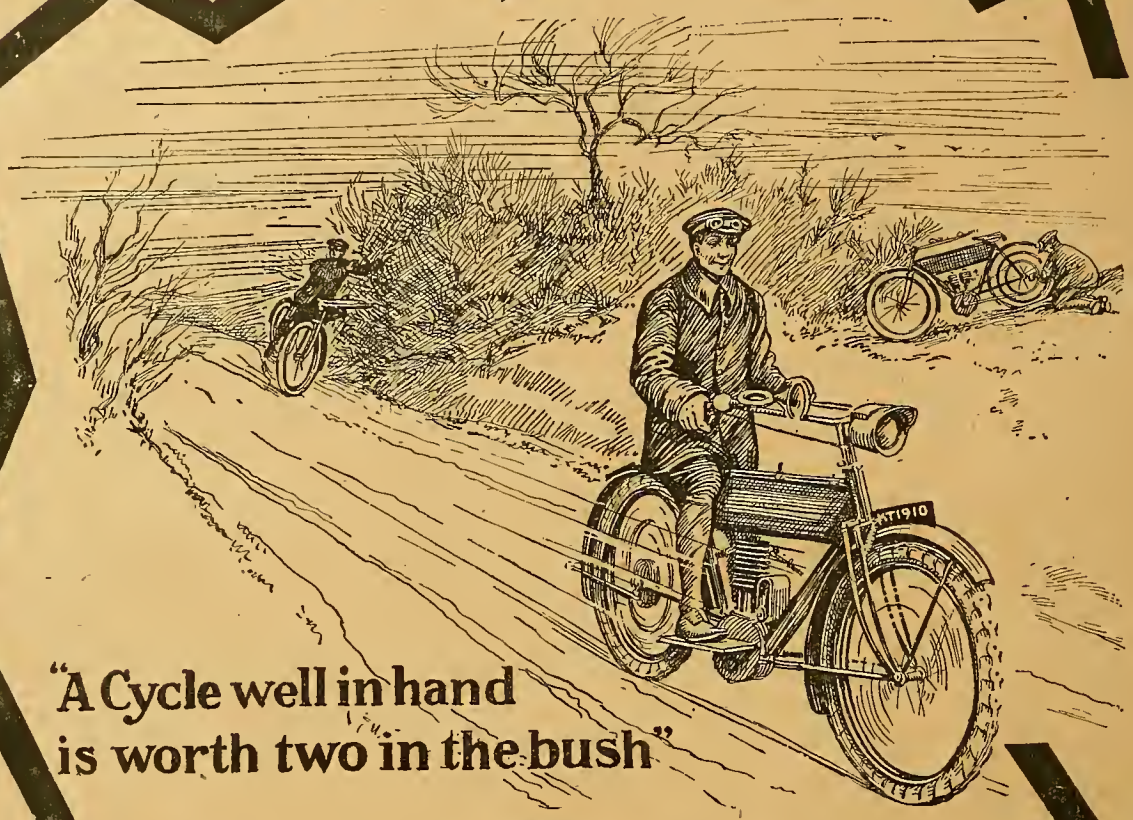

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C.D.C.

In answering this advertisement it is desirable to mention "The Motor Cycle."

Water Cooling on Motor Bicycle Engines.

ON reading the above title many motor cyclists will scout the idea that water cooling is necessary or even desirable on motor bicycles. But on further consideration, when so many complaints are heard of valve troubles, overheating troubles, the rapidity with which working parts wear, and last, but not least, the frequency with which it becomes necessary to clean the cylinder heads and pistons of some engines, any means which will either totally prevent or even mitigate all or any of the above troubles calls for careful thought.

In many cases the dismounting of a cylinder is no small matter, and, even if it is a comparatively simple job, it is an extremely dirty one, and, moreover, a task which should not be necessary oftener than once a year.

Early Experiments.

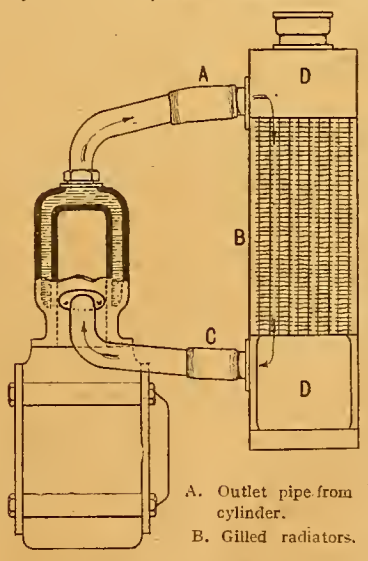
Unfortunately, not very much has been done, in public at any rate, regarding experiments in this direction. Rather over six years ago a French importation known as the Iris was sold at a small shop in Brixton, made in two models, single and twin, to both of which, water-cooled cylinders were fitted. The water compartment was carried separately from the fuel and oil tanks, and had tubes running through it, which acted as a sort of radiator. But the firm exploiting the machine closed its doors before much more was heard of it than the usual technical description in *The Motor Cycle*. Later a well-known firm of accessory factors imported also from France an experimental chain-driven, water-cooled motor bicycle known as the Bruneau, which I rode for some time. It was rather better made than the Iris, was a marvellous hill-climber for its size, more efficient by far than the average motor bicycle, and totally devoid of knock.

Next there came under my notice a machine built to the order of a private owner fitted with an engine possessing a water cooled head—none other than the famous White and Poppe, a few of which were turned out so constructed about five years ago for light tricars. The amateur in question was enthusiastic to a degree about his mount, and declared that no air-cooled engine of equal size could live with it. He carried out the circulation system very carefully, and never experienced trouble either from the water boiling or from leaky connections.

Green's Patent Water Jacket.

Following on this my attention was called to Green's water jacket and radiator combined—a most ingenious device invented by Mr. Green, of Bexhill. The device consisted of a copper water compartment, provided with pipes running through it to ensure good cooling, which fitted over a finless cylinder, and to the bottom of which a rubber joint was supplied to make the whole watertight. It was first fitted to a few Rex engines, and was entered for one of the A.C.U. hill-climbs at Birdlip, but did not compete. It was tried by a well-known firm of motor cycle manufacturers, who did not adopt it. However, I still hope to hear more of it, as an adaptation of the idea is now embodied in the Aster aeronautical engine now made under Mr. Green's patents.

Lastly, we have the famous Scott motor bicycle, which is at present the only machine actually on the market which is water cooled. In the days of the popularity of the motor tricycle a water-cooled head was used with remarkable success by the makers of the De Dion tricycle, also the makers of the Ariel tricycle. Mr. C. A. Smith, treasurer of the Auto Cycle Union, still uses two of these splendid old stagers. One has a water-cooled head, and the other is only air cooled. Of the two Mr. Smith reports that the water-cooled engine is the more powerful and the more reliable of the two. From these accounts it may be fairly accurately deduced that, size for size, the water-cooled engine is decidedly more powerful, but it must be borne in mind that greater weight is unavoidable. I also seem to hear someone say, "Greater complication also." But surely a complication which gives no trouble neither deserves the name nor even can be said to exist as such. All improvements may be called complications until they are tried, but when they are tried and their presence does not make itself known the opprobrious term falls into oblivion. All depends upon the way in which the cooling arrangements are carried out, and if the waterways are of sufficient size, the cooling surface of the radiator is ample, and the joints are properly made, there should be no trouble.



A. Outlet pipe from cylinder.
B. Gilled radiators.
C. Inlet pipe to cylinder.
D.D. Water tanks.

Water Cooling on Motor Bicycle Engines.—

Water-cooling is, of course, only suitable for heavy and mediumly heavy touring machines of 3½ h.p. and over. The lightweight will always remain air-cooled; but I am confident that sooner or later many machines will be born which will be water-cooled, and that successfully, and without adding greatly to the weight. Should this ever come to pass—and it is quite possible—the slide valve engine will be *un fait accompli*, and a new era will dawn upon the motor cycling world. The one and only cooling system suitable for motor cycles is the thermo-syphon, which novice readers may care to have explained. The principle is this: It is well known that hot water is lighter than cold water. Consequently, as the water surrounding the cylinder is heated by the explosions, and has always the weight of the cold water in tank and radiator bearing upon it, it rises and passes through the delivery pipe A. It then has access to the radiator B, consisting of numerous gilled tubes which, offering a large surface area to the air, rapidly cool the water. The moment the hot water begins to rise through A it is replaced by the cooler water in tank and radiators which enters the cylinder jacket through the return pipe C. In a correctly arranged system some portion of the tank and radiators is always above the highest point of the water-jacket, and the pipe A where it enters the tank should always be covered with water. For that reason it is made to enter the tank at a prearranged distance from the top. The sketch on previous page shows a system that has been used on several different tricars, notably the Rex Litette and Singer. In this system the outlet pipe from cylinder is made to enter at bottom of top tank. Thermo-syphon cooling is simple and reliable, and the only two necessary conditions are large pipes and an ample radiator. Naturally, to render success a certainty the best workmanship is necessary. In these days of two-speed gears and the ever-growing popularity of passenger attachments, it seems that greater attention should be paid to water-cooling. The Scott has been the first machine to lead the way in a serious manner. Who will be the next to follow?

AILETTE.

THE TRANSMISSION QUESTION.

THERE are few things on a modern motor bicycle which can be so readily criticised or about which there is such diversity of opinion as the transmission of power from the engine to the back wheel. It appears that the choice between what may be termed flexible and rigid transmissions is still, and probably will remain for a considerable time, a matter of personal sentiment. When one hears experienced riders say that they would on no account ride a machine on which the power of the motor is directly conveyed by gear or chain to the rear wheel it can only be supposed that the prejudice is shared by less experienced riders.

Ignoring chain and gear transmissions unprovided with some form of clutch or slipping medium between engine and road wheel, we come next to the most usual form of transmission on motor cycles, which is, of course, the belt.

Smoothness of Drive.

Now, considering the fact that no belt is capable of extending and contracting to the amount necessary to give a flexible drive, it is obvious that the so-called flexibility or smoothness of transmission is due to a momentary slip of the belt over the smaller pulley. This slip occurs at each explosion or sudden impulse of the engine, and is very hard on the belt, tending to shorten its life and stretch it unduly. We have therefore to strengthen the belt to withstand great tensile forces, yet at the same time its fibres when in tension must be capable of easy curvature to enable it to follow the circumference of the pulley without offering much resistance or without taking up too much power in bending. What is required is a combination of the flexibility of a chain with the adhesive qualities of a leather or rubber belt.

I only know of one belt which combines these qualities in an efficient manner, and that is the Whittle link grip belt. Now I am not in the least interested in the firm who makes the belt except that I have purchased a belt, and since the date of that transaction I have had no more trouble with transmission.

Previously I tried all kinds of belts—plain leather, leather strips built up in various ways, and, of course, our old friend the rubber and canvas belt. The great popularity of the last-named type seems to be due to two causes:

(1) The resemblance of the majority of motor cyclists to a flock of sheep.

(2) The ignorance on their part of anything better.

I used to have no end of trouble with slip, breakages, fasteners, and the like, not to mention a large bill for belts at the end of the year. At one time I never ventured on a long journey without a spare; now I have no need for such a thing.

I was repeatedly warned by other motor cyclists not to have a Whittle. They said it was heavy and expensive, would wear out the pulleys, would need constantly cleaning, scraping and dressing, was messy, and so on. In face of this opposition I decided to try one, and have used it on a Triumph machine which has been ridden in the worst storms and over the vilest roads it has ever been my lot to see.

One night after returning from an unusually bad ride even for these northern latitudes (N.E. of Scotland) a man came into my garage to see the machine that had braved such elements. What was the make? Triumph. What were the tyres that did not skid even on those roads? S.E. studded. And what was the belt? Whittle. That belt had been running for 4,000 miles, and looked like doing a similar distance again. It gets cleaned and a little dressing smeared into it about every six weeks. But wait; perhaps the pulleys are worn to the bone. No, they seem untouched. Perhaps the power taken up in turning such a belt is appreciable. No, I have never found that, and forty-seven miles per hour by stop watch in touring trim does not confirm the idea.

Its opponents must think of some other disadvantage before they shake my faith in it.

CIVIL ENGINEER.

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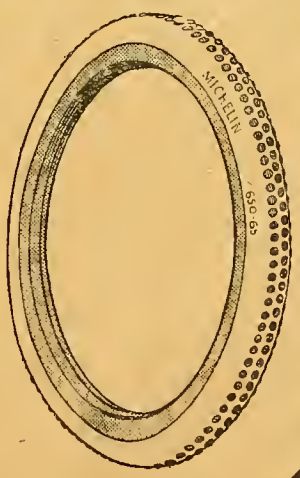

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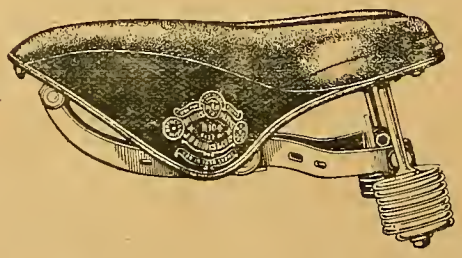


BROOKS B104 Anti-Vibratory Motor Cycle Saddle

MOTOR CYCLE RECORDS, 1909.

Specially compiled for "The Motor Cycle," by J. Sinclair.

For years past it has been our custom to publish a list of motor cycle records at the close of the old year, and this, the first issue of the New Year, contains a list of British and Continental Records existing on December 31st last. It is the most complete list in existence. In a subsequent issue a list of American records as officially recognised by the Federation of American Motor Cyclists will appear. It is obviously impossible to publish in this issue a complete list as standing at the end of 1909, but the authentic list from the F.A.M. is now on its way to us and may arrive in time to be published next week.

MOTOR cycle record-breakers at home have been fairly busy during the past year, as, with the exception of the hour, all the middle and long-distance figures have been altered, H. V. Colver and H. A. Collier being responsible for the principal changes. The decision of the Auto Cycle Union to recognise class records has resulted in many new names figuring in the record sheets, and there is not the slightest doubt that the innovation has proved a success, as, apart from affording owners of various powered machines a chance of distinguishing themselves against the watch, the respective speed merits of all classes of motor cycles on the market can be officially tested. Class C, for engines not exceeding 500 c.c. capacity, has found several new aspirants to record fame, G. Lee Evans having appeared very prominently, but late in 1909 O. C. Godfrey annexed the hour and fifty miles records in this particular class. On the Continent the cracks have been particularly quiet, the only rider to be successful being Jean Olieslagers, who did some extraordinary times at Antwerp, covering one lap on a small wooden track at a rate of 72¼ m.p.h.

In America all records have been swept by the board at the new Springfield Stadium. F. Huyck was successful in establishing new figures up to the hour, while Charles Spencer and Charles Gustafson put up new figures up to twenty-four hours.

1910 promises remarkably well, as already several well-known record-breakers have announced their intentions of setting up some sensational times and distances, particularly in view of the fact that the Americans are now well in the field as regards record-breaking. Thanks to the large track at Brooklands, and the exceptional facilities granted by the popular Major Lindsay Lloyd, British motor cyclists have now an excellent opportunity of distinguishing themselves against the watch. During the past year some very

1909 BRITISH RECORDS.

Distance	Time.	Holder.	Track.	Date.
kilos.	h. m. s.			
1fs.	25⅗	H. Cissac	Blackpool	July 27, '05
1ss.	35	,,	,,	,,
mls.				
1fs.	46⅕	H. Rignold	Brighton	July 20, '05
1fs.	47⅗	W. E. Cook	Brooklands	June 16, '09
5fs.	4 58⅗	G. A. Barnes	Canning Town	July 14, '06
1ss.	50⅕	H. Cissac	Blackpool	July 27, '05
2	2 5⅘	C. R. Collier	Canning Town	June 4, '06
3	3 5	,,	,,	,,
4	4 8⅗	,,	,,	April 16, '06
5	5 12	,,	,,	,,
10	10 26⅖	,,	,,	May 28, '08
20	21 16⅘	,,	,,	Oct. 11, '06
30	31 54⅘	,,	,,	,,
40	42 37⅕	,,	,,	,,
50	48 25⅗	H. V. Colver	Brooklands	Oct. 9, '09
60	1 11 28⅗	H. A. Collier	Canning Town	June 27, '06
70	1 23 12⅖	,,	,,	,,
80	1 34 56⅗	,,	,,	,,
90	1 50 59⅘	,,	,,	,,
100	1 39 4⅕	H. V. Colver	Brooklands	Oct. 9, '09
150	2 58 56	H. Martin	Canning Town	Feb. 15, '09
200	4 5 54⅖	,,	,,	,,
300	6 6 28	H. A. Collier	,,	May 5-6, '09
hrs.	mls. yds.			
1	68 1380	C. R. Collier	Brooklands	Oct. 8, '08
2	118 719	H. V. Colver	,,	Oct. 9, '09
3	165 936	H. Martin	,,	Nov. 22, '09
4	194 1320	,,	Canning Town	Feb. 15, '09
5	245 640	H. A. Collier	,,	May 5-6, '09
6	294 800	,,	,,	,,
12	471 784	,,	,,	,,
18	611 330	,,	,,	,,
24	775 1340	,,	,,	,,

1909 CONTINENTAL RECORDS.

Distance	English Equivalent	Time.	Holder.	Track.	Date.
kilos.	mls. yds.	m. s.			
1fs.	1093⅔	25⅘	J. Giuppone	Ostend	July 14, '06
5fs.	3 1881/3	2 45⅕	,,	Salon Road	Sept. 18, '06
10fs.	6 376⅔	5 49⅖	,,	Parc des Princes	Sept. 2, '06
1ss.	1093⅔	33⅕	J. Olieslagers	Antwerp	June 24, '09
2ss.	1 427⅓	1 6⅖	,,	,,	,,
3ss.	1 1521	1 41⅗	,,	,,	,,
4ss.	2 854⅔	2 17	,,	,,	,,
5ss.	3 1881/3	2 52½	,,	,,	,,
10ss.	6 376⅔	5 34⅘	J. Giuppone	Parc des Princes	Dec. 9, '05
20ss.	12 753⅕	11 21⅗	,,	,,	,,
30ss.	18 1130	17 14	,,	,,	,,
40ss.	24 1506⅔	23 8⅖	,,	,,	,,
50ss.	31 123⅓	29 1⅗	,,	,,	,,
60ss.	37 500	34 57⅖	,,	,,	,,
70ss.	43 876⅔	40 54⅕	,,	,,	,,
80ss.	49 1253⅓	46 51⅓	,,	,,	,,
90ss.	55 1630	52 45⅗	,,	,,	,,
100ss.	62 246⅔	58 38⅕	,,	,,	,,
mls.	kils. metre				
1fs.	1 609	56⅜	A. Anzani	Vel. d'Hiver	Dec. 23, '06
1ss.	1 609	53⅕	H. Cissac	Dourdan	Oct. 8, '05
hrs.	mls. yds.	kils. m.			
1	63 1078	102 368	J. Giuppone	Paris	Dec. 9, '05
2	77 754	124 600	A. Anzani	,,	July 13, '03
3	114 1326	184 666	,,	,,	,,
4	146 1364	236 200	,,	,,	,,
5	184 636	296 666	,,	,,	,,
6	220 529	354 430	,,	,,	,,
12	434 425	698 900	,,	,,	,,
*1	56 1685	91 665	R. Thomas	,,	Mar. 10, '06
†1	59 801	94 73	A. Pernette	,,	,,

Pending agreement between A.C.U. and F.A.M., all world's records in abeyance. *Third of a litre. †Under 110 lbs.

Motor Cycle Records, 1909.—

good performances have been accomplished at Brooklands, but owing to the odd distance of a circuit (2.71767 miles) intermediate mile times cannot be taken.

1909 BRITISH CLASS RECORDS.

CLASS A. (Maximum Capacity, 275 cc.)

Distance and Time.	Holder.	Track and Date.
1 kilo. fs. 48.641s.	G. L. Fletcher	Brooklands, June 16, '09
1 mile fs. 1m. 19.213s.	,,	,,

CLASS B. (Maximum Capacity. 344 cc.)

1 hour 34 mls. 542 yds.	G. L. Fletcher	Brooklands, Oct. 9, '09
2 hours 78 mls. 132 yds.	F. W. Dayrell	,,
50 miles 1h. 23m. 54s.	,,	,,

CLASS C. (Maximum Capacity, 500 cc.)

1 kilo. fs. 34.403s.	H. H. Bowen	Brooklands, June 16, '09
1 mile fs. 56.002s.	,,	,,
50 miles ss. 49m. 59⅘s.	O. C. Godfrey	Nov. 24, '09
100 miles ss. 1h. 50m. 24⅘s.	G. L. Evans	Nov. 13, '09
1 hour ss. 59 mls. 1350 yds.	O. C. Godfrey	Nov. 24, '09
2 hours ss. 108 mls. 1367 yds.	G. L. Evans	Nov. 13, '09

CLASS D. (Maximum Capacity, 750 cc.)

1 kilo. fs. 34.569s.	G. L. Evans	Brooklands, June 16, '09
1 mile fs. 55.64s.	,,	,,
50 miles ss. 1h. 4m. 28⅕s.	W. Krause	Oct. 9, '09
1 hour ss. 46 mls. 816 yds.	,,	,,
2 hours ss. 95 mls. 694 yds.	L. W. Bellinger	,,

CLASS E. (Maximum Capacity, 1,000 cc.)

Distance and Time.	Holder.	Track and Date.
1 kilo fs. 29.465s.	W. E. Cook	Brooklands, June 16, '09
1 mile fs. 47.57s.	,,	,,
50 miles ss. 48m. 25⅗s.	H. V. Colver	Oct. 9, '09
100 miles ss. 1h. 39m. 4⅕s.	,,	,,
1 hour ss. 59 mls. 291 yds.	,,	,,
2 hours ss. 118 mls. 719 yds.	,,	,,

British Records for Motor Bicycles with a bore and stroke of 76×76 mm., or equivalent.

Distance	Time.	Holder.	Track.	Date.
mls.	m. s.			
1fs.	1 2	C. R. Collier	Canning Town	Aug. 10, '07
2	2 17⅕	J. Perkins	,,	July 14, '06
3	3 27⅖	,,	,,	,,
4	4 37⅕	,,	,,	,,
5	5 40⅕	C. R. Collier	,,	July 13, '07
1ss.	1 16⅕	C. E. Bennett	,,	Aug. 10, '07
5	5 40⅖	,,	,,	,,
9	10 11⅗	H. V. Colver	Stadium	Aug. 22, '08
10	11 24⅖	C. E. Bennett	Canning Town	Aug. 10, '07
15	16 59⅖	H. V. Colver	Stadium	Aug. 22, '08
20	22 58	C. E. Bennett	Canning Town	Aug. 10, '07
24	27 9	H. V. Colver	Stadium	Aug. 22, '08
30	33 58⅖	,,	,,	Aug. 22, '08
40	47 12⅕	C. R. Collier	Canning Town	July 13, '07
45	50 56⅖	H. V. Colver	Stadium	Aug. 22, '08
50	58 31⅖	C. R. Collier	Canning Town	July 13, '07
51	57 48	H. V. Colver	Stadium	Aug. 22, '08
hr.	mls. yds.			
1	52 1650	H. V. Colver	Stadium	Aug. 22, '08

A USEFUL MOTOR TRICYCLE.

IN *The Motor Cycle* of December 20th, our contributor "Ixion" made the following remarks in his comments: "Personally I don't favour the two front wheel steering type of motor tricycle; minus a good heavy weight over the front axle it is about as miserable to sit as anything I know." "Ixion" has evidently not tried the 2¼ h.p. two-speed F.N., on which we enjoyed a run the other day over the vilest and heaviest of London roads. Owing to its short wheelbase, the low position of the engine, and the careful distribution of the weight, the machine is particularly well balanced, and though it would appear to the casual observer to be likely to be uncomfortable on very rough roads, we can assure our readers that this is not the case. No better testing ground than Portland Place exists on which to test a machine for comfort, as its surface is covered with holes large enough to bury a small football. Yet despite its small tyres and light construction the little F.N. three-wheeler rode those bumps splendidly. Moreover the steering was perfectly steady, and though direct practically irreversible. It is true that to one unaccustomed to use it a tricycle feels somewhat strange, but we can quite understand that such a feeling would pass off in a very short time. We have already referred briefly to the running of the 2¼ h.p. F.N. motor bicycle, and we were particularly pleased to make further acquaintance with it with its tricycle attachment. The particular tricycle in question was fitted with a separate Bowden lever for controlling the clutch—a real and genuine improvement which works admirably. With it the machine may be comfortably started from standstill, and the excellent clutch allows the drive to be taken up with the greatest smoothness. Either by declutching or by raising the exhaust valve the gears engage with absolute ease and silence. Two small points, however, call for criticism. Firstly, the present arrangement of the brakes is capable of improvement. On the tricycle under consideration, there was a back pedalling band brake and a hand operated horseshoe brake. The former we understand will be worked by a pedal. This will be a step in the right direction, but inasmuch as two brakes will still be operating on the same wheel, we venture to suggest that good, well-compensated front wheel brakes would be desirable, and each set of brakes should be worked by pedals placed on either side of the well sprung footrests. Secondly, since it is somewhat difficult to make the engine run slowly when in neutral, a magneto spark advance would be a desirable fitment. In our opinion these two items would tend to render the F.N. tricycle as near perfection as the mind of man can conceive.

The articles in *The Motor Cycle* on multi-point ignition have excited extraordinary interest in this important question, so much so that Lodge Bros. and Co., Birmingham, request us to give prominence to the fact that they cannot accept any more orders for Lodge Double Pole plugs at present, as their stock has been entirely exhausted. By the way, we may inform our readers that these double pole plugs will not fit all makes of engines until the valve caps are altered, on account of the fact that the electrodes project about 1in. into the cylinder.

OCCASIONAL COMMENTS.

BY "IXION."

Coaster Hubs and a Heckler.

I have often felt sorry for political notabilities, when some ingenious heckler unearths contradictory extracts from speeches they have made at varying intervals, and exhibits them as, for instance, cursing Tariff Reform in 1906 and adoring it in 1909. I am now in the same boat, for a correspondent convicts me of slanging coaster hubs for motor cycle work not so very long ago, and then belauding them in a recent issue. I plead guilty. I am not ashamed to change minor opinions when due cause is shown. My own experiences with coaster hubs date a long way back, when these hubs were not a hundredth part as good as they are now; but of late years the experience of others, coupled with examination of the splendidly made hubs now marketed, has led me to revise ancient prejudices. I still prefer the foolproof belt rim shoe, but on chain-driven machines this brake is often impracticable; and, failing the belt rim shoe, I doubt if there is a better substitute than a first-rate modern coaster hub, which, after all, is only a miniature replica of the internal expanding brake in use on most modern cars.

Bravo the A.C.U.

The A.C.U. has at last adopted an ancient suggestion of mine, and fixed up the dates of its principal trials fine and early. This is as it ought always to have been. But is it ungenerous of me to wonder why the principal event of all, the 1,000 miles trial, is always held in July? I admit that month secures a good entry, and is probably the best suited to the trade element. But I thought we had agreed on the principle that trials are to be amateurised as far as possible, and undoubtedly August is the normal amateur's holiday time. I have met lots of riders who bemoaned the July trial, because they could not ride in that month, and it might not be a bad plan to see what entries would be received if the date were August.

The Twisted Belt on Lightweights.

I see Mr. De Lissa takes exception to my remarks on the round twisted leather belt, and says that if riders would only give these belts as much attention as they give their boots, all would be well. But my standpoint is that I object to giving a belt anything like the attention I give my boots. My boots have to be cleaned every day, and sometimes twice a day; they have to be very carefully dried and scraped and greased whenever they get muddy and sodden. If I could get a pair of boots that I could walk in from 1,500 to 2,000 miles with no other attention than the waste of a few minutes three times or so in that distance, I should not wear the sort of boots I wear now.

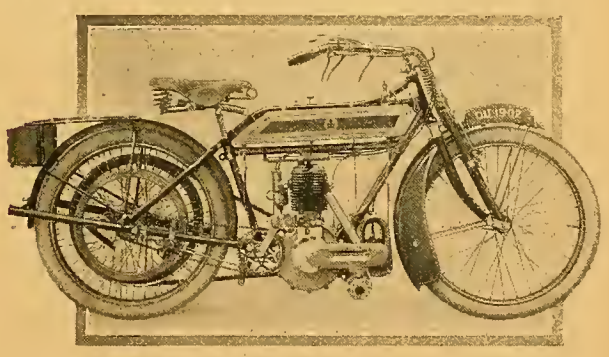
Returning to the sphere of belts, there actually are belts in existence which can be relied upon to propel a motor bicycle for 1,500 to 2,000 miles with no other attention than two or three shortenings, and this is why I and some others I know are not enamoured of the twisted leather variety; though, in fairness to Mr. De Lissa, I must admit these belts give less trouble on the Motosacoche than on any other motor bicycle past, present, or—possibly—to come, thanks to its low power and light weight.

The 1910 Six Days' Trial.

The new regulations for the Six Days' Trial are of exceptional interest. The End-to-end course is not considered severe enough to eliminate the duds among modern motor cycles. It is not possible to construct artificial gradients, and so the trial is to be stiffened by lengthening the daily runs to such a degree that the riders will reach the far north in about five days, and on the sixth day return a decent distance south again for the conclusion of the trial. If they encounter such wind and weather as greeted them up north two years ago, the trial will be stiff enough in all conscience. I should like to suggest a big open hill-climb on Amulree on the following Monday or Tuesday, which I feel sure would be extremely popular. In fact, as the classic course possesses only a sentimental interest, and loses that interest when riders are not out for record, I should like to see the trials make a *détour* and include Amulree in the official route. A motor cycle that can climb Amulree can climb anything, and what a chance for the variable speeders to show what they can do in the way of negotiating steep ascents and bad corners.

A Hill-climb Suggestion.

Now that hill-climbs are so common, the novelty of the spectacle they provide has largely vanished, and it no longer thrills us to see a crouching rider of a motor cycle flit past in a cloud of dust and glory. Hills with difficult and dangerous bends still stir the nerves of the most *blasé*, but as spectacles hill-climbs have lost a lot



A 1910 model Rex. This mount has a 3½ h.p. single cylinder engine, spring seat and spring forks, and a multiple plate clutch neatly disposed in the rear hub, and operated by a Bowden lever on the handle-bar. The foot brake actuates on the dummy belt rim.

of their interest. One of the provincial clubs made an interesting departure last summer in the interests of the spectators by selecting a straight, broad road of moderately easy gradient, and sending the riders up in pairs. I think this method merits a wider application. It might be added to a programme as the last event of the day, riders being handicapped on their previous solo performances, and then to conclude the event by riding against each other in pairs on the knock-out principle, each receiving a start of so many seconds determined by the speed of his earlier ascent. An ideal venue for a trial of this sort would consist of a hill resembling Dashwood, on some lonely road, supposing such a hill exists.

INDIA, the home of the ox-waggon, or, as it is termed in the vernacular, "bile-gharri," is scarcely an ideal country for a motor cycle, nevertheless it is possible to obtain both pleasure and excitement from the possession and use of one. It must be recognised that this is not a country of perfect roads, even in the large cities. The constant traffic of the "bile-gharries," laden with cotton, wears out and renders the best made roads more like ploughed fields than good motor cycling roads. Then add to this the monsoon weather, and you have the most lovely examples of mud rivulets that you can imagine, even if you have had occasion to ride on an English road made sodden by a thaw after a heavy fall of snow. Outside the bounds of cities, during the best weather, some of the roads are not bad, but here and there one finds patches which would call forth sulphurous epithets from a sweet-tempered angel.

I am about to tell you of a little week-end trip which a friend and I planned and eventually carried out, but if any of the incidents I relate do not strike you as being exactly "according to the book," please accept my apologies for "needs must when the devil drives."

The Start.

My friend and I left Bombay one Friday morning during the dry season, having as our destination Igatpuri, a small town about 105 miles away, on the main road to Nasik, a place of great repute among Brahmins. He was mounted on a 3½ h.p. Rex of somewhat early build, and I on my newly imported 1909 Triumph. Laden with a good supply of spares and enough wearing apparel for necessary changes, we felt quite happy as we tootled out of Bombay on to the Thana road. This we negotiated satisfactorily until we reached Kurla, a village boasting of a couple of silk mills, but whose roads were more like dust heaps than billiard tables. Here we crossed the main line of the Great Indian Peninsula Railway, and after passing two small villages turned to the right, and safely reached Thana, where a halt was called at the dak-bungalow for breakfast. What is a dak-bungalow? I hear someone ask.

In a Dak-bungalow.

Well, it is a kind of public hostel under Government control. It is more like a two-roomed hovel, whitewashed inside, with a verandah running round the outside. Here one can get meals of a kind and at a price, and, if desired, sleep on a bed in the same room. Our speedometers at this point registered twenty-seven miles. Getting away from Thana, we again crossed the railway line, and, increasing speed, we had safely covered a couple of miles when the first mishap took place. My friend when travelling at thirty-five miles an hour, badly punctured his back tyre, and so great was the velocity and so serious the puncture that the rim was badly dented. Dismounting, we found it necessary to detach the back wheel and hammer out the rim. This done and the tyre repaired, after a delay of two and a half hours we restarted, and met with a stretch of road practically impassable on account of the depth of dust, but after slight delay we reached Kalyan, our chosen resting place for tiffin (lunch). So far we had travelled forty-two miles only. After light refreshment, of which we felt sorely in need after our exertions in repairing the tyre, we remounted, and, proceeding about one mile, we reached a spot where the sea has forced its way inland, forming a creek of no mean size.

Here it was necessary to enlist the aid of a boatman, and so one by one we crossed the water, each looking after his own machine during the passage. Safely we reached the further bank, but not without some trepidation, as the boat was in some danger of capsizing on account of the unequal weight of the machine.

Away once again, we encountered a piece of road which agitated our "innards" very considerably, for the past monsoon had swept across the road, washing it away, until it had the appearance of a dried-up river bed. To prevent total extinction of the road, square stones had been laid down without mathematical precision; the result was that our bicycles bounded along rather than ran. Hereabouts a further slight mishap overtook my friend, for with continually raising the exhaust the lifter wire broke, necessitating another delay; but, finding we could not repair this, we proceeded under difficulties.

The Result of Riding with a Broken Lifter.

For some miles we were favoured with a good road, and merrily "sailed" along, until we came to several sharp turns, which, trying to negotiate with a broken exhaust wire, my friend found most difficult, and eventually, skidding in a heap of dust, his machine

A Week-end Trip in India.—

turned a complete somersault. Picking himself up, we proceeded onwards, arriving at the foot of the "ghauts" (hills) outside Igatpuri. Here we were temporarily beaten, for it was growing dark, and my friend on examination found that the spill had robbed him of his lamp and toolbag, and in addition we were parched with thirst. To alleviate our thirst we opened my acetylene lamp and drank what water there was in it. Fearing to climb the ghauts in the darkness without a valve lifter, my friend decided to remain while I went forward for help.

Reaching Igatpuri, I called at the Co-operative Stores for a bottle of Pilsener beer, which quickly disappeared. Obtaining possession of a bottle of soda water, I turned back to assist my friend, but after riding a back trail for ten miles I failed to find him, and decided to return to Igatpuri, where I discovered that he had arrived by a short cut over the fields, leaving his machine behind on the roadside. Proceeding to the dak-bungalow, we were lucky to obtain a room just vacated, and after obtaining much needed refreshment we speedily sought the nocturnal couch, and to our weary bodies sweet sleep swiftly came as relief.

Interested natives examining the Rex machine outside the blacksmith's shop at Igatpuri.

A Native Blacksmith's Repair.

Rising betimes in the morning, our first attention was to satiate the demands of "Little Mary." This concluded, we decided to seek my friend's bicycle, which had been left overnight by the roadside. While my friend proceeded in a tonga (a small covered pony vehicle) I mounted my bicycle, and together we reached the spot, to find the bicycle quite safe and untouched. Returning to the village, we sought out a native blacksmith, and managed to get the exhaust wire repaired. The accompanying photograph shows the machine at the blacksmith's shop—an object of wonder and delight to the dark-skinned onlookers. We spent the day alternately exploring the surroundings of the village and resting in the dak-bungalow, where we chatted over our journey with its excitements and mishaps. The following morning we were to return to Bombay, and at 8.30 we were overlooking our machines preparatory to starting, when, much to my friend's annoyance, he found that the fool of a blacksmith had left the exhaust wire too short to give free play to the movement of the handle-bars. On discovering this, he decided to return by rail, and so it remained to me perforce to return alone. Leaving at once, I made a splendid run to the creek, previously mentioned. Obtaining a boatman with a small boat to ferry me across, I discovered, much to my discomfort, that the only money I had was a Rs. 100 note (value £6 13s. 4d.), but on further seach I discovered four one anna stamps (value 4d.), which satisfied the boatman. Having crossed the water, not without a certain amount of danger, I remounted and reached Thana at midday. Here I rested, and later, after partaking of tea, I proceeded on my journey, reaching Bombay without any mishap after an excellent ride, in the cool of the evening. My friend reached home safely, his return trip being accomplished under safer, albeit less exciting, conditions.

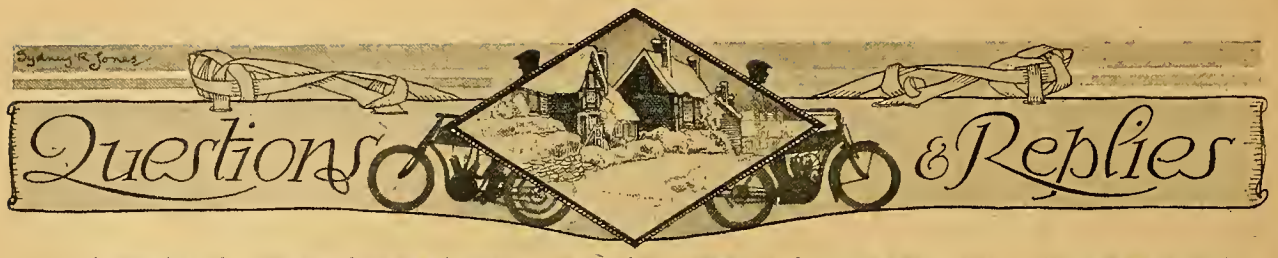
G. H. WILSON.

A Tip for Users of the Mabon Clutch.

MANY readers of *The Motor Cycle* are owners of machines fitted with the Mabon multiple disc clutch, and, like other owners of good things, they often abuse the clutch. I do not propose to tell readers how to keep their clutches in proper order, but rather to call their attention to one tip worth knowing in connection with the operating lever. My remarks apply particularly to machines which have an inverted lever on the left side of the handle-bar for operating valve lifter or brake. With this lever in its usual position the Bowden lever operating the Mabon clutch has, of necessity, to be set more or less horizontally and practically in a line with the handle-bar. In this position one's fingers become cramped when the clutch is continually in use—when driving in congested traffic, for instance. To render the manipulation of the clutch lever a matter of greater ease I moved the inverted lever on my machine further inwards towards the stem, drilling and tapping a fresh hole in the sleeve which fits inside the end of the handle-bar, and using the same screw to fix it. The Bowden operating lever can now be set so that it comes almost immediately under the handle-bar grip and practically in the same position previously occupied by the inverted lever. So placed one can operate the clutch for a long time without cramping the fingers of the left hand. The alteration occurred to me while practising slow riding for the M.C.C. "tortoise" race held at Brooklands last October, and the extra comfort and increased delicacy of control with the lever in its new position astonished me. At first I thought of using the inverted lever for operating the clutch and fitting a small thumb lever for operating the exhaust valve lifter, but the small catch on the thumb lever would possibly be awkward to operate quickly whilst riding, even if it were strong enough to hold up the lever.

H. G. BELL.

When purchasing Rich detachable air tubes riders are advised to see that they get the special lubricant for smearing on the jointed ends as well as an instruction card with every tube, whether fitted to the machine or not. The manufacturers inform us that the tubes are often condemned through these omissions. It is also essential to see that the proper size tube is supplied, as a tube which is too large for the cover can seldom be made airtight.



A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Gradient of Westerham Hill.

Having read of tests with motor cycles being made on Westerham Hill, Kent, I should like to know the gradients of this hill.—D. T. (Blackpool).

Westerham Hill, Kent, is 1,764⅓ yards long, lift 392.79 feet, steepest gradient (at the corner) 1 in 7.8, average gradient 1 in 13.44.

Licence for Use of Coupling Attachment.

Please be kind enough to inform me if the Inland Revenue tax will cost me any more if I attach a pedal bicycle to my motor bicycle by means of one of the couplings on the market.—W. Black (Gloucester).

In many districts the authorities insist upon the payment of the two-guinea tax. They consider that a bicycle and motor bicycle when coupled constitute a four-wheeled motor-propelled vehicle. Other authorities are content if a 15s. trailer licence is taken out.

Turning Oil Groove on Engine-shaft.

Would you tell me whether a right or left hand groove should be cut on the shaft of an outside flywheel motor to prevent oil oozing out of the long bearing? Motor revolves in a clockwise direction.—L.L., Perth.

The correct way to cut the spiral groove referred to is the reverse to the way in which the axle revolves.

One Guinea or Fifteen Shillings Licence.

I purchased a motor cycle three weeks ago. Am I compelled to pay 7s. 6d. licence for it this year? I have not taken it on the road yet, but have received a notice calling my attention to the fact that I have not yet taken out a licence for it. Also am I compelled to pay £1 1s. or 15s.—A. D. (Edgbaston).

The Inland Revenue Authorities in their list of exemptions say that a motor bicycle which is kept but not used in any one year is not liable to licence duty. Now, however, there seems to be a little doubt about this (see *The Motor Cycle*, October 13th, 1909). We should advise you to repudiate the liability, and if the authorities are still persistent, either place the matter in the hands of a solicitor, or communicate with the Legal Departments of the Auto Cycle Union, 18, Down Street, Piccadilly, W., and the Motor Union, Caxton House, Westminster, W. The licence payable at present is 15s., and we advise you to apply for it at once.

Gear Ratio for Sidecar Use.

The makers of the P. and M. fit two different gear ratios to their standard machines, viz., for solo work 4½ to 1 and 8 to 1, for passenger work 5 to 1 and 9 to 1. I want a machine that will travel fast for long distance journeys as a solo machine, but shall want to use the same occasionally for a sidecar, and I am in doubt which set of gear ratios to order. Would the 4½ to 1 gear be too high for a sidecar on ordinary roads when I should have the lower gear of 8 to 1 to fall back upon?—Chain Drive.

You cannot have a high gear ratio for travelling fast when the machine is used as a solo machine, and a low gear ratio for sidecar work unless you are willing to alter the chain sprockets every time you use the machine for one purpose or the other. You will have to be content with the low gear ratio for passenger work, and will probably find that with 5 to 1 you will obtain a fair average speed. The gear of 4½ to 1 would be too high for sidecar work on ordinary roads, as though you have the lower gear to fall back upon you would probably require to use it too often, and would find it irksome. That is the reason the makers fit a moderately high top gear ratio.

The Care of Belts. Loss of Compression. Lubrication.

(1.) A few weeks ago I got a ⅞in. Whittle belt for my 3½ h.p. 1908 Tourist Rex (which has covered 6,000 miles). The first day out I ran about ten miles in a downpour with inches of mud and slush on the road, and the belt never slipped. The next two days it slipped badly, although the roads were fairly dry. I am told now that I should have steeped the belt in castor oil before using it, but the makers told me I needed no oil. I put, however, a smearing of engine oil along the upper side of belt before putting it on, for that wet run, and I'm just wondering now whether that is the reason the belt seemed to be very greasy along its sides and picked up a lot of grit. I have now got a tin of special dressing from the makers. I have to ride every day and in all weathers. (2.) My engine will hold my weight (eleven stones) on compression only about seven or eight seconds. I fitted new piston rings only a few days ago and ground in valves and fitted new washers. Do you think it would be advisable for me to get my cylinder reground or rebored? (3.) Do you think I could use Price's C (water-cooled) oil for winter work? (4.) Do you think the amount of oil supplied to engine could affect the noise of exhaust if I use a superfluity of oil? My engine runs almost silently. The less oil there is in crankcase the noisier becomes the exhaust.—D. Patrick.

(1.) After using your belt you should have wiped it or scraped it, removing all grit. Afterwards it would have been advisable to have dressed it with the maker's dressing or collan oil. Possibly the cause of the trouble is that the grit on the belt caused the surfaces of the leather links of the latter to become shiny, and that you dressed this with oil of an unsuitable nature without previously removing the grit. (2.) If you only fitted new piston rings a few days ago you must allow a short time for these to become properly run in. Probably after you have done 300 or 400 miles the compression will return. (3.) The oil would be quite suitable. (4.) Yes, certainly an excess of oil will make the engine run quietly, but it tends to foul the engine. The makers of your engine now fit an automatic lubricator which you could doubtless obtain.

Fitting a Free Engine Clutch.

(1.) Could a Mabon, L.M.C., or other free engine clutch be fitted to a 1909 machine which has no provision for a clutch? (2.) Will a clutch allow one to start the machine from a standstill? (3.) Could I fit it myself? (4.) Is it injurious to the engine to inject large quantities of petrol through compression tap? Will a clutch allow one to start the machine on a fairly steep gradient with single gear?—D. G. A. (Newcastle-on-Tyne).

(1.) Most 1909 machines are suitable for the Mabon, L.M.C., or other clutch fitting on engine-shaft. A clutch in the back hub might entail some structural alterations. (2.) If carefully manipulated a clutch would allow you to start from a standstill. (3.) Not unless you are a fairly experienced amateur mechanic. (4.) Certainly, it is injurious if overdone, as it tends to wash away the lubricant from the piston rings. Paraffin or petrol can be recommended, but there is no necessity to use a large quantity. (5.) If the machine is geared low, with careful manipulation it is possible to start on a fairly steep gradient.

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Mr. B. H. Davies' Opinion—

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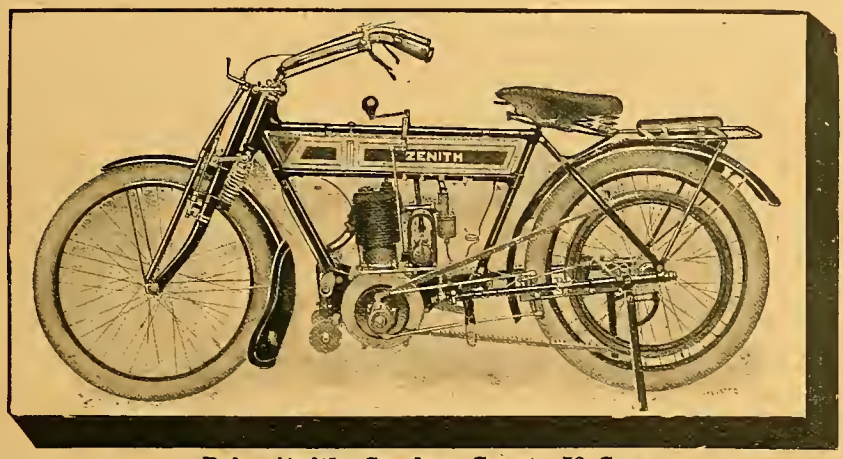

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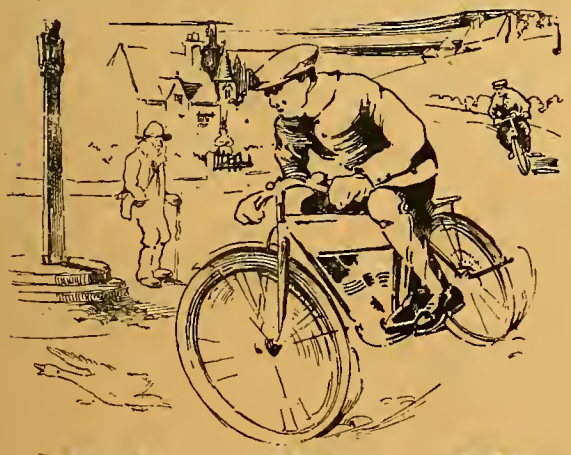

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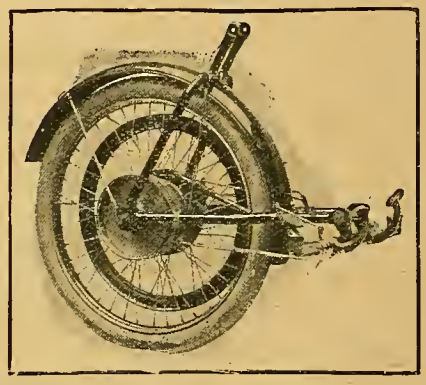

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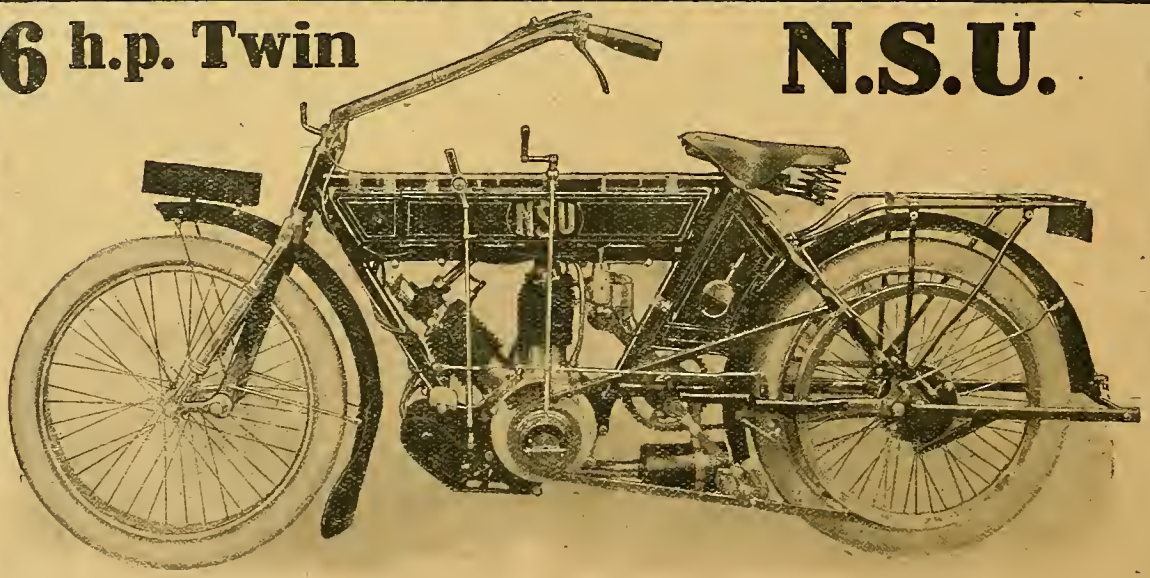

This machine will be very popular

next season—more popular even than in 1909, which is saying a good deal.

It has 75 × 90 mm. cyl., Bosch magneto, gear driven, divided rear mudguard, handle-bar control, internal expanding brake operated from handle-bar, belt rim foot brake, and can be fitted with two-speed gear and free engine apparatus in the rear hub. Have you the N.S.U. new list?

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Speed Against the Wind.

The questions below refer to Phelon and Moore 2½ h.p. 125 lbs. two-speed lightweight. (1.) What is the length of Netherhall Gardens and the gradients? (2.) What speed ought an eleven stone rider to get out of above machine on an ideal day and on a windy day? (3.) What gradients could an eleven stone rider climb on the above-mentioned days? The P. and M. people say that it will climb Netherhall Gardens and do a speed of thirty-five miles per hour, but what is the weight of rider, etc., for such a performance?—H. H.

(1.) The total length of Netherhall Gardens is 993 yards, and the principal rise occupies about 602 yards. The steepest portion is 1 in 7.2, followed by gradients of 1 in 10, 1 in 15, then level, and then slightly downhill. (2.) There would be a difference of about three miles an hour on a windy day from what there would be on a calm day. (3.) On the low gear it would not make much difference. You can probably rely upon climbing 1 in 7 under practically all conditions provided your weight does not exceed eleven stones. The maker's estimate is about right if the rider weighs about eleven stones.

Misfiring and Running in Jerks.

Please advise me as to what is wrong with my 3 h.p. N.S.U. The machine has coil and accumulator ignition, and is running badly, missing fire and running in jerks, and refuses to get up any speed or develop any power when on the road. If I run it on the stand, with the rod operating the inlet valve disconnected, *i.e.*, with the inlet valve working automatically, it runs well; but if I try it on the road with automatic inlet valve it runs badly, and on the road or on the stand with valve working mechanically it also runs badly. There is a distinct blow back into the carburetter. At first I thought that the inlet valve was not shutting properly, but I examined it, and as far as I can see it is all right. The ignition is in good order. I can see no solution to the trouble, which seems to me to lie either in the valve or the carburetter. Could the timing gear be wrong by any chance?—TUATH MUMHAN.

We should recommend you to dismount the inlet valve, its seating, and operating mechanism, and examine all the parts very carefully, as some defect in this is almost certain to be the cause of the trouble. Probably, we should imagine, the spring is too weak, and a stronger spring may be necessary. The blow back to the carburetter seems to point to the inlet valve opening too much. Note that there is only sufficient clearance between the tappet and valve stem to insert a visiting card, and see that the opening occurs at the proper time. Excessive wear in the cams and tappets or any defect in the timing gear would account for the symptoms you describe. The amount of valve lift is adjustable.

Touring Abroad.

I am starting in a week's time for a three weeks' tour to the South of France. Is it necessary to have my machine "examined" and to "declare" it before the officials at Calais where I start? Will it be necessary to get new registration numbers, or will the English number be sufficient? Is a driver's licence needed? If needed how can it be obtained without delay? Is motor cycling practicable in Greece, Egypt, India, and the East Coast of China? I shall be going to these countries and wish to take my motor bicycle with me if petrol can be had on the main roads, and if these roads are fair.—B.J.H.

First of all it would be advisable for you to join one of the motoring organisations, either the Auto Cycle Union or the Motor Union. You will find that it will simplify matters for you to an extraordinary extent. Membership allows you to get a vast amount of information regarding touring abroad free of charge, and you may purchase your tickets beforehand and have your route mapped out; also get a Customs ticket which will admit your machine into the country free of duty. It will be necessary to register the machine in France, which will cost about sixty centimes, but you may if you like carry your English numbers. The bodies in question will also tell you if motor cycling is practicable in Greece. In Egypt, India, and in parts of China it is possible. It may be necessary to obtain a driving licence in some of the countries named, but not in France for a short stay.

Increasing Power and Silencer Explosions.

(1.) Can I get more power for hill-climbing with sidecar out of my 3½ h.p. Minerva by making extra holes in jet of Longuemare carburetter? (2.) How can I stop the banging or loud explosions in the silencer every time I lift the exhaust valve? I have put new valves in the engine, and it is now worse. It is a very objectionable noise when there is much traffic. —F. C.

(1.) You can get more power by enlarging the jet of your carburetter, but if the carburetter is apparently adjusted satisfactorily at present and the machine runs well and keeps cool, it is wise not to interfere with it. A larger jet will necessitate enlarging the extra air supply or fitting a larger choke tube. If you overdo the size of the jet the engine will quickly overheat. (2.) You can stop the explosions in the silencer by fitting a switch and switching off before you raise the exhaust valve. Also make sure that your exhaust valve lifter is working properly. If you do not desire to fit a switch, try controlling speed by the throttle lever, and always close the throttle before raising the exhaust valve.

Of lawn tennis fame. Mr. G. W. Hillyard, of Thorpe Satchville, Melton Mowbray. His mount is a free engine Triumph.

THE SHOW QUESTION

The Amateur Motor Cyclist's View.

BY "AUTO-KUKLOS."

ON more than one occasion the amateur motor cyclist has rightly been called the most enthusiastic of all motorists, and consequently he is extremely critical about the way the machines in which he is so deeply interested are displayed at different exhibitions. When he visits the annual show at which his beloved motor bicycle may only be seen, he is annoyed by having complete pedal bicycles, and numberless stands of pedal cycle accessories, many of which are for the trade only, meeting him at every turn. It has been said the pedal cyclist is the man who fills the ranks of motor cyclists, and in a sense this is true, but it is doubtful if many converts are obtained among the class of man who belongs to the type of cycling club whose members take up the best part of the highway near our large cities on a Sunday morning. This class of man, who usually predominates among the throng at the cycle show on Saturday evenings, has generally neither the money nor the inclination to buy a motor bicycle, and it is doubtful if from this type many motor cyclists are gained. No, it is from the slightly wealthier classes that most recruits come—men who love their steeds, who are devotees of the mechanical, and when once won over are the most enthusiastic of enthusiasts. Naturally these people were once owners of pedal bicycles (and many still own them and use them for short town journeys), but they merely rode them while they awaited the coming of some better means of locomotion, or a congenial motor cyclist to convince them of the advantages of the motor cycle. These seventy odd thousand motor cycle users, many of whose letters pour in their hundreds to the Editor weekly, want something different in the way of shows than they have had in the past.

A Purely Motor Cycle Show.

Indications are clearly seen that what they desire most, and for which they clamour, is a purely motor cycle show, or a thoroughly representative motor cycle section of a motor show, and they are not anxious to go to a second-rate district of London to see it. Now I will ask the kind permission of the Editor to enquire of the readers of *The Motor Cycle*, through the correspondence columns, if they as motor cyclists would rather wade through avenues of pedal-propelled machines and rows of pedal cycle accessory stands, or see their motor cycles and the many interesting accessories appertaining to them ranged together, say, at the Aeroplane Show of the Society of Motor Manufacturers and Traders. There would be room there for an excellent display, and they would be by no means out of place. Again, the complete set of shows could be held simultaneously—motor car, motor cycle, aeronautical, and lastly pedal cycle, in various buildings a few yards apart at the White City.

Though this idea is not original on the part of the writer, he thinks it is worthy of consideration. This suggestion would, at any rate, come very near to the ideal, as it would necessitate all the shows being held together in one week, which would be of enormous advantage to provincial visitors, both amateur and trade. It might also be possible to use the spacious grounds of the White City for trial runs, which were so much appreciated at the Crystal Palace years ago. A certain section of the motor cycle industry, namely, those who form the committee of the newly-founded Association of Motor Cycle Manufacturers and Traders, expressed it to be their firm opinion that a purely motor cycle show was necessary.

A Knotty Problem.

Now my article is intended to appeal to the amateur only, and it is his opinion that I want to get. Nevertheless, though the industry must be considered, it must be left to find out its own solution of the problem. The problem is this: The Stanley Show want to cater for the motor cyclists, and intend to hold another show this year; the Association of Motor Cycle Manufacturers and Traders (and undoubtedly all amateur riders agree with them) want to see a show for motor cycles only; the Society of Motor Manufacturers and Traders want to run a motor cycle section, and would probably establish a motor cycle show in conjunction with their Aeronautical and Motor Boat Show, as suggested above; and the Cycle and Motor Trades' Association want to organise a mixed motor cycle and cycle show at Olympia. Here is a pretty tangle. One show and one show only must be supported, but the motor cyclist, whose numbers are increasing, wants the motor cycle industry to be properly and adequately represented.

It has been suggested that an exhibition of motor cycles only could well be held in such a compact and easily accessible place as the Horticultural Hall, Westminster, which would probably accommodate the trade in its present state, and this the writer would gladly welcome, but it must be borne in mind that the industry, though vigorous, is young, and to those firms who build motor cars, motor cycles, and pedal bicycles, three separate shows would impose a heavy tax on their resources. If the amateur is at all clear as to what he wants, he can use his influence to get it by writing to the Editor of this journal, who has given me permission to say that amateur motor cyclists' suggestions regarding the show question will be willingly inserted as space permits in these columns. In a few months from now things will begin to hum once more, and it is time for action *now*. Therefore let everyone concerned put his whole energy into this important question.

1910 1910

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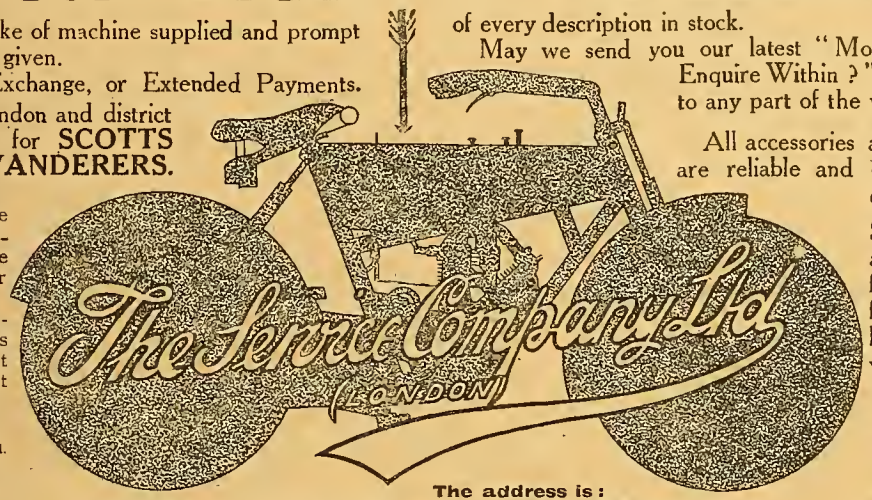

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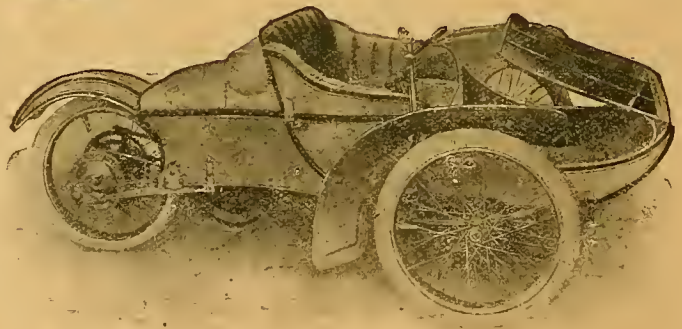

SPECIAL POINTS.

No. IV.

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The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Amulree Hill-climb.

[4473.]—Replying to Mr. Cameron's letter, published on December 13th, he admits that Mr. Campbell McGregor's machine—a T.T. Matchless model—was allowed to compete in the touring class. Why then was Mr. J. Adamson debarred with his 3½ h.p. T.T. Triumph? The two machines are the same in detail, allowing for each maker's ideas, with the exception that the 3½ h.p. T.T. Triumph is 10 lbs. heavier and the rider 3 stones heavier. An explanation will oblige.

FAIRPLAY.

English v. French Measurements.

[4474.]—In support of Mr. Scott's contentions with regard to the confusion resulting from the use of millimetres for cylinder dimensions, a very striking example occurs in the article by Mr. Norton on "Bore-stroke Ratio and Efficiency." The writer after launching forth in millimetres finds it convenient suddenly to convert his square centimetres to square inches in order to find the load in lbs. on the bearings of the engine.

If it is necessary to give the cylinder pressures in lbs. per square inch, why give cylinder areas in cubic centimetres?

FRANK PHILIPP.

Does an Engine Run Better at Night?

[4475.]—Some time ago Mr. E. L. Ovington, of New York, raised a discussion in your columns on the "abnormal running" of a high speed air-cooled engine.

There is another abnormal condition resulting in an engine turning over unusually fast and pulling harder, and this generally occurs as night comes on, but occasionally before dusk. For a long time past I have watched this singular condition in a single-cylinder Indian, and also with two other American makes. Some riders say here that one only imagines one is travelling faster at night, but this is not so, for I have watched the behaviour of the engine day and night on familiar hills.

Rainy or damp days do not seem to produce a mixture having a greater expanding force. I would be pleased to hear if any English riders have noticed this kind of abnormal running, and what explanation they have adopted for it, if any? Wishing *The Motor Cycle* every success in the New Year,

EDWARD O. DUNKLEY.

Rhode Island, U.S.

A Friendly Match.

[4476.]—With reference to Mr. H. C. Tromp van Diggelen's letter in the issue of December 20th. As this gentleman still persists in challenging his Wanderer machine against a British machine of higher power, I, for one, should very much like to see the discussion ended, and I should be sorry to think that your readers were gulled into imagining that this new arrival of 2½ h.p. was equivalent to our British machines of 3½ h.p.

According to Mr. Diggelen's statement in his letter, the distance he raced the members of the Western District M.C. was not sufficiently long to give his engine a chance, and so I would like to accommodate him by racing for the distance he suggests, viz., 100 miles, the loser to pay track expenses. My machine is a 3½ h.p. Brough standard touring model (which can be proved in a tortoise race afterwards).

Mr. Van Diggelen also says in his letter that he has no interest whatever in the Wanderer firm. If this is so, why was he, on the occasion of the M.C.C. meet at Brooklands, showing photographs of the various models made by this firm, and informing people that he had introduced the Wanderer into England?

GEO. BROUGH.

Wired v. Beaded Edge Tyres.

[4477.]—I have read with interest the letters on wired *v.* beaded edge tyres, and I think that the greatest pull that the beaded edge has over the wired has not been mentioned. I mean that of friction between cover and rim, which has caused me endless trouble with wired edge covers, but I have not had a single instance with beaded edge. Also I find that the beaded edge keeps out the water much better than the wired, and the air tube does not deteriorate with rust from the rim (inside cover) as does the wired edge. I have had ten years' experience of wired edge, and do not want another.

G. LOBB.

Two-speed Gears.

[4478.]—It may interest the patentees of the two-speed gear (patent No. 24,729, 1908) illustrated under recent patents, page 1018, December 20th, 1909, to know that I took out a provisional specification for the same idea some years ago, but owing to there having been prior use on the public highway it was useless my obtaining a complete specification. The details and description of this gear were illustrated and described in this journal on June 20th, 1904, pages 588 and 589. I have had it in operation on my tricycle some four or five years with complete success, it having run some 10,000 miles, during which time I have had not a single thing go wrong with it.

I write this because it may save the patentees time and money, as I was bitten by the same thing.

LEONARD R. JONES.

Cold Fingers.

[4479.]—As an all-weather-200-mile-per-week-every-week motor cyclist (in the course of my professional duties as a road surveyor and lecturer at evening classes in various centres in different parts of Cheshire), I am naturally very interested in the correspondence *re* cold fingers which appeared recently in *The Motor Cycle*. I have tried practically all forms of covering, and find that a good pair of loose fitting woollen gloves covered over with a pair of large (size 9) leather hunting gloves makes as effectual a protection as anything. The chief point, to my mind, is that wool should be fairly loose—I mean not tight fitting—to allow free circulation. I am never troubled with cold now, although I am out riding some four nights per week and every day during the winter.

F. J. K. C.

Possibilities of a Modern Tricycle.

[4480.]—Having read "Ixion's" comment regarding the probabilities of a modern tricycle, and having myself experienced the instinct to balance and steer with the front wheel of the tricycle, I think the trouble might be done away with by having wheel steering fitted, and perhaps a bucket seat. These (especially the former attachment) should, I think, remove the difficulty, as they give you the idea of being on a non-balancing machine, such as a car. I should like to know what "Ixion" thinks of the idea?

R. OVERMAN.

[4481.]—In the issue of December 20th the "Possibilities of a Modern Tricycle" forms the text of some remarks by your usually prescient writer "Ixion." I have read the article carefully through, and fail to find any possibilities described, save that of the certainty of accident, and the dogmatic opinion that when the tricycle is so arranged that two wheels are steering in front and the third is driving

behind, then it is very miserable to sit upon. Having given much attention to the problem of constructing a satisfactory motor tricycle, and having ridden one for the past three years, in which I steered with the two front wheels and sat over the driving wheel at the rear, and found the same very satisfactory, especially from the point of perfect and almost unconscious steering and general comfort in riding, I feel constrained, if you will allow me, to correct the very false predictions in the article alluded to.

The first thing to note is that a tricycle is steered and not balanced, and that the arrangement of two front wheels with Ackermann axles (the ordinary motor car method) gives far more steering power than can be obtained if there be only one wheel in front. As most of the weight is behind the front axis, there is a real tendency for its inertia to find support and bearing on the front wheels, which gives a sense of security, especially at fast speeds. This is not present with a single front steering wheel, which is liable to be deflected by ruts in the road.

A very essential thing in a tricycle is to keep down the weight. It leads to less first cost, to economy in tyres, handiness, a long mileage to the gallon of petrol, and to all-round efficiency. Now the weight is very materially reduced

Familiar faces on the Sevenoaks Road at week-ends—Mr. and Mrs. W. J. Leader on their 5 h.p. twin-cylinder Kerry with Liberty sidecar. The sum total of stops, beyond trivial adjustments, on the above combination during 1909, were one puncture to sidecar tyre, and one stop due to mishap with the timing gear. The machine has now run 3,770 miles with 22½ stones up. Mr. Leader speaks well of the Peter Union bands on the tyres.

by having to drive only one wheel. To drive two wheels through a differential and to have at the same time a two-speed gear makes a difference of at least 50 lbs. in weight and £20 extra in cost.

The great bugbear in all motor cycle touring is where is the luggage to go. The difficulty is solved with the two front wheels, for, as "Ixion" remarks, weight placed over the front axle adds to the stability.

It is a universal experience with tricycles, motor and otherwise, that in turning corners one must go slowly. Sitting over the back wheel there is more space and greater freedom to lean the weight of the body inside the curve one may be turning, by standing on the inside pedal. This action, I may say, becomes almost automatic and unconscious with experience.

I think a two-speed gear absolutely essential to a motor tricycle, and I look forward in the near future, now that many excellent engines of quite moderate power with smooth and quiet working two-speed gears have been evolved, to see motor tricycles again upon the road, providing a most comfortable mount to those of the older brigade who have passed through and beyond the joys of the single track machine.

BERTRAM CHATTERTON.

Motor Cycle Tyres.

[4482.]—Motor cycles are becoming almost too reliable—and complicated. What we really want is simplicity, yet that seems just the last aim of the modern manufacturer. And what a time we still have with tyres! Year after year tyres become more expensive and go to pieces quicker. One make goes at the bead, another in the centre of the tread, and on a third the canvas parts company with the rubber all the way round the tyre. And the tyre companies behave so peculiarly. One friend of mine sent a tyre, through an agent, to a well-known firm to be retreaded. They replied that the tyre was not worth it. Since then he has been trying ineffectively for three months to get his tyre back. Another company had a pair of faulty tyres returned to them, repaired one under guarantee, but refused to repair the other, though both were of the same age and suffering from the same fault, and what is still more remarkable, they removed their trademarks from both tyres. What was their idea in this? What we want in Scotland is a tyre that will last on our roads. Such a tyre, apparently, is non-existent. When will all tyre companies fit a valve to their inner tubes that will hold air without having to be pumped board hard?

TYRED.

The A.C.U. and Provincial Clubs.

[4483.]—I have been very interested in the two letters which have appeared in *The Motor Cycle re* the A.C.U. and provincial clubs. I should be very sorry indeed to see a split in the governing body, but I am very much afraid that unless the A.C.U. alters its tactics and caters for the provincial clubs a little better there is bound to be one.

I fully agree with Messrs. Brook and Smith that the council meetings should be held consecutively in different towns, although instead of Gloucester, as Mr. Brook suggests, I should certainly say Birmingham or Coventry.

I think No. 5 proposal in Mr. Brooks's letter is a very good one. It is simply ridiculous that two or three clubs cannot have a friendly competition without having to pay for a special permit.

And why should every competitor in such an event have to pay 2s. 6d. for a racing licence?

I am sure some of the quarterly trials and long-distance competitions (I don't say all, but just one or two of them) ought to start and finish in the provinces. It seems to me that the provincial members are the "mugs" who help to provide the necessary for the metropolitan members to buy cups, etc., for the Londoners to compete for.

I hope that some arrangement will soon be arrived at which will bring the provincial members on level terms with the metropolitan members.

HOWARD R. LANE.
Hon. Sec. Sutton Coldfield Automobile Club.

Belts on Lightweights.

[4484.]—"Ex-lightweight's" remarks *re* belts on lightweights seem to me to be the outcome of gross misuse of the belt in question. My Motosacoche round twisted belt, as supplied by makers, has given me no trouble whatsoever. Mr. De Lissa's remarks are quite in accordance with facts.

My advice to lightweight riders who use round twisted belts is:

1. Get a good one (a double ply).
2. Keep it as slack as possible without slipping when running.
3. Don't use it when dirty, but clean it.
4. Use it alternately with a spare, so that when it has been running some time it can have a rest.

My own practice is to keep three belts, using them every alternate week, thus each belt gets a fortnight's rest, which seems to restore its elasticity, and there is no undue wear.

My oldest belt has been running eighteen months in this fashion, and seems good for many miles yet. Naturally, it is rather thin, but when well dressed it pulls as well as ever.

A V belt on a lightweight under 2 h.p. is unnecessary, and absorbs too much power in transmission, and is not nearly so satisfactory as a round one with jockey pulley, as proper tension is a *sine quâ non*.

"Ixion's" remarks are useless and misleading, as they only apply to the old "crock days." Let him ride a Motosacoche with a round twisted belt of best quality and then his criticisms may possibly be of some value.

G. E. CASE MORRIS.

Bore-stroke Ratio and Efficiency.

[4485.]—I was very interested in Mr. J. L. Norton's article on "Bore-stroke Ratio and Efficiency," but on carefully looking into the figures given there appear to be several serious discrepancies which render absurd and modify some of his arguments in favour of long stroke engines.

First of all, in considering heat losses through the area exposed to gases, Mr. Norton finds that, with the exhaust valve opening at 85% of the downward stroke the short stroke engine has 23 square centimetres more area exposed than the long stroke.

On checking over the calculations, I find the total area exposed in the case of the short stroke is 377 square centimetres, and in the case of the long stroke 376.6 square centimetres. The difference in areas is therefore negligible, and the only thermal efficiency argument rendered futile.

Another point which is not quite clear is the statement that, "considering the valve pockets, a long stroke engine shows a higher thermal efficiency than a short stroke engine."

Again, on considering the stress on bearings, the area of the small diameter piston is given as 7.5 square inches, which under a load of 150 lbs. per square inch gives a total load on the connecting rod bearing at dead centre of 1,100 lbs. Then, for comparison, the area of the large piston is given as 19 square inches! the total load in this case being quoted as 2,800 lbs. In reality, this would be 12 square inches and the load 1,800 lbs.

Also considering stress on bearings, it is stated that to obtain equal power from both engines it will be necessary to run the short stroke engine at a higher speed. At the commencement of the article, power is said to be governed by piston displacement (compressions being equal), and also that the two engines under consideration are of equal piston displacement, therefore, it follows that both engines to give the same power must, obviously, run at the same number of revolutions per minute.

With this in mind, the short stroke engine does not suffer from the thermal and frictional disadvantages that the author would have us believe; in fact, the number of strokes per minute, being of necessity the same in both engines for the same power, the long stroke engine is labouring under the same difficulties of induction and exhaust (dealt with at some length by Mr. Norton) as the short stroke engine.

I am pleased to see that Mr. Norton graciously admits that the short stroke engine gives greater power per unit of engine weight than the long stroke—a very desirable feature in motor cycle engines. J. T. CLARKE.

[A copy of the above letter was submitted to our contributor, Mr. J. L. Norton, whose reply is reprinted below.—ED.]

[4486.]—I thank your correspondent for calling attention to the discrepancies in figures in my article, due to my having been given a misreading of the slide-rule. The difference in total area exposed should be .4 square centimetre, and not 23; but I cannot agree with his assumption that the correction of figures disposes of the matter of the higher efficiency of the long stroke.

Total area was *finally* considered for the sake of brevity, but when your correspondent says that "the only thermal efficiency argument is rendered futile," and later "the short stroke engine does not suffer from the thermal . . . disadvantages the author would have us believe," I must with all courtesy suggest that he has not read the article with sufficient care or thought to prevent his overlooking consideration of factors of vital importance to the question. As a matter of fact, the disadvantages are very considerably greater than even the surplus figures tended to show; and I would call his attention to the area and shape of combustion chamber, and, further, to the following factors affecting thermal efficiency:

(1.) Heat loss depends upon temperature difference.

(2.) Period of greatest thermal loss is the period of greatest pressure or heat.

(3.) Conductivity of gas increases rapidly with temperature, and makes heat-loss at high temperatures much greater than in simple proportion to temperature.

(4.) Heat loss varies as the ratio of surface to volume.

(5.) The most important losses are those during ignition, as they affect the whole of the stroke, lowering mean pressure.

(6.) Surface of the combustion chamber and valve pocket area exposed during the whole time occupied by the stroke, the stroke walls being exposed during part of the stroke only, and to comparatively lower temperature.

(7.) Shape of combustion chamber materially affects efficiency, a compact form tending to higher mean pressure, greater economy, and therefore also higher thermal efficiency.

Bearing above paragraphs in mind, a little consideration will show the superiority in point of thermal efficiency of the long over the short stroke, which latter presents approximately twenty-five per cent. more cooling area to the gases when their temperature and conductivity is highest, and at a period when loss affects the whole of the subsequent stroke.

I need not dilate further upon this.

Your correspondent says another point not quite clear is the statement that "considering the valve pockets, a long stroke engine shows a higher thermal efficiency than a short stroke."

My statement was based on the assumption that valve dimensions are proportionate to piston area. Larger valves require larger pockets, with necessarily increased area exposed (see paragraphs 2, 4, and 6 above).

Considering stress on bearings, apart from thermal losses, your correspondent is correct in giving the area as 12 square inches, and load 1,800 and not 2,800. This was a typist's error in transcribing from hastily pencilled notes. The percentage of difference in load is 63.5 against the short stroke—not an inconsiderable item, remembering that a variation of the load (load increasing with decrease of stroke) also affects friction.

It is a generally understood fact that a short stroke engine under practically all circumstances suffers from greater mechanical disadvantages than the long stroke.

To deal with that portion of your correspondent's letter commencing "Also considering stress" and ending with the paragraph previous to "The long stroke engine is labouring," I should have to rewrite a portion of the article, and emphasise more clearly the matter of efficient burning, etc., which he has overlooked. May I recommend further perusal of the earlier portion of the article, and also refer him to his figures showing 700 lbs. greater stress on the short stroke bearings?

His statement that a long stroke engine is labouring under the same difficulty of induction and exhaust requires consideration, and does not entirely agree with my deductions. I should be pleased to receive proofs of the correctness of his views.

The matter of bore-stroke ratio and weight is an interesting one, and at first glance appears to open up glorious possibilities to the motor cyclist. It is, however, unfortunate, and must not be overlooked that he cannot with the usual type of engine avail himself of the full advantage of the possibilities of weight saving the short stroke offers him, as may be done in the case of a car engine, and whilst, as your correspondent implies, a light engine is a very desirable feature, it is questionable if it is not better for the motor cyclist to carry a little, a very little, additional weight low down, and ensure efficiency, flexibility, a strongly pulling engine for hill work, and economy, or to take the weight from the engine, place it high up in the tank, with the loss of above advantages, and pay, pay, pay for it.

I look forward with interest to the article by Mr. A. A. Scott, and derive pleasure from the fact that the object of my article is likely to be realised, *i.e.*, profitable discussion, which will tend to the improvement and greater efficiency of the motor cycle engine.

JAS. L. NORTON.

EXPERIENCES WANTED.

"K. K. K." (Bristol) would like readers' experiences with benzine as a fuel.

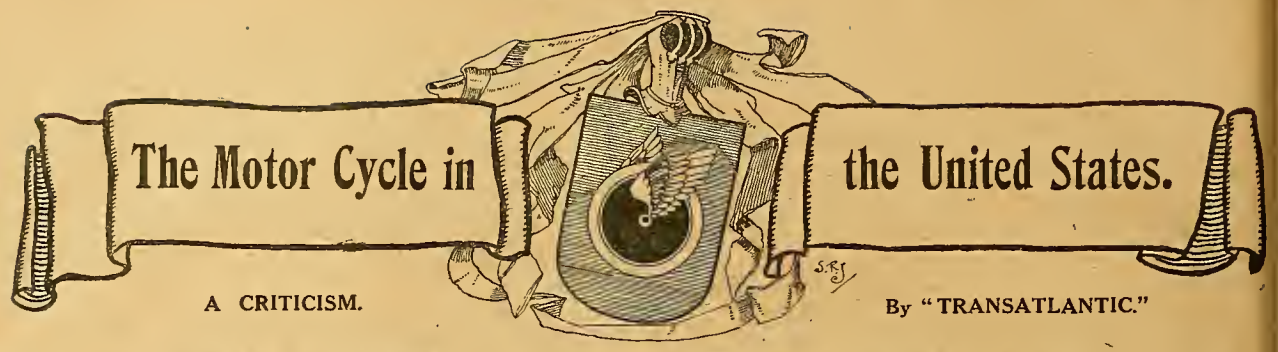
"C. B. A." (Watton) would like readers' experiences of the Hobart Bird Handy lightweight.

"B.L." (Switzerland) would like experiences with A.C. tandem tricars, especially as to rough roads, steadiness of springing, and sufficiency of brake control.

"FC 424" (Bromley) would like private owners' experiences with the Zenith Gradua (4 h.p. J.A.P.), particularly as regards petrol consumption and wear of belt.

"Minerva" (East Ham) desires readers' experiences of a push bicycle coupled to a motor bicycle, especially as regards (1) safety, (2) vibration, (3) negotiating corners, and (4) how and where to fix couplings.

"Opal" (Exmouth) would like readers' experiences of Lomax, Phrax, and Gripstein belting, particularly on 2¾ h.p. twins; also the Service Co.'s mirror lens acetylene searchlight.



The Motor Cycle in the United States.

A CRITICISM.

By "TRANSATLANTIC."

(A friend possessing an inside knowledge of the motor cycle industry has just returned from a lengthy visit to the States, and has given me the following impressions of motor cycles across the herring pond.)

"WHAT do you think of Yankee machines?" was my first question.

"Well, barring the Indian, which you all know, and which is easily the most popular mount in the States, they are, frankly speaking, a disappointing lot—very much where English machines were four or five years ago. Gaudy coloured enamels and ungainly tank and frame outlines are, of course, mere matters of taste, but both in constructional details and general specification they are as a class vastly inferior to British types."

Magnetos Not Standard.

"Very few makers have yet adopted the magneto as standard, though many are ready to fit it as an extra. The automatic inlet valve is still retained on most engines. Luggage carriers are conspicuous by their absence, perhaps owing to the small amount of genuine touring work possible in most localities. Very often no stand is provided, and some of the few stands I saw were worse than useless. No attempt is made to shield the rider from bad weather; even a front mudflap seldom figures on a standard mount.

"The frames almost without exception exhibit marked crudity in design. Bent tubes chiefly predominate, the English plan of reaching a maximum combination of strength and lightness by using straight tubes with struts being almost unknown. The engine is often attached by a light, flimsy clip, and in particular the steering heads are often short and not set at the best steering angle."

American Motor Cycle Engines.

"This is biting criticism indeed. What did you think of their engines?"

"Generally speaking, they are totally devoid of that smart aspect to which we are accustomed in England. They are stuck on the frames rather than built into them, and the exhaust piping is long, thin, and full of bends. Mechanical inlet valves are far from being standard. The carburetter is fitted anywhere—on some machines it is in front of the cylinder, where it gets frozen itself and screens the engine; on others it is at the back, coupled up by a long meandering pipe.

"The control is almost universally by twisting grips with rod or linkshaft connections, and struck me as considerably inferior to our flexible wires, because of the number of joints necessitated in such a system and the rattle and backlash which time is bound to produce in them. Of course, the majority of American makers have never had to cater for reliability in the same sense that our makers regard it, for most of their customers only use their machines for short excursions to suburban resorts, the country roads being so unspeakably vile, while in addition the towns are tremendous distances apart, and intermediate supplies are not obtainable."

The Popularity of Chain Transmission.

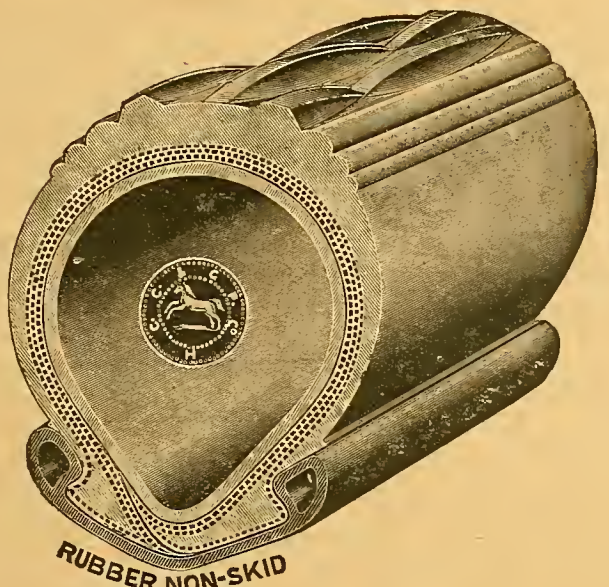
"Did you form any opinion about the popularity of the chain drive?"

"It is certainly an easy winner over the belt, but that is simply due to the shoddy nature of most Yankee belts. Many riders told me it was absolutely impossible to obtain a decent belt of American manufacture. I was shown many which were quite worn out after 100 miles, and they cost as much as ours. They are often good for nothing after two or three days' use. Hence the wide popularity of the chain. Many of the chain drives are also very flimsy. Chicago appeared to be the centre of the motor cycle manufacture, many firms having their factories either in the city or in what they would term 'the immediate neighbourhood,' *i.e.*, somewhere within a radius of 400 miles. The suburban roads round Chicago are excellent, but the main street is—with the exception of Montreal—the worst I have ever seen. At the corner of State Street and Jackson Avenue—corresponding, say, to Piccadilly Circus in London—I measured one hole fourteen inches deep. Along such streets as this motor cars run as far as possible on the tram track. Shock absorbers are both universal and indispensable, while ninety per cent. of the cars I saw were run with open exhaust."

Catching Up Quickly.

"Do you think there are any prospects of a general improvement in American motor cycles?"

"Undoubtedly. They are catching up fast, and in two or three years will most probably be as good as ours. Several makers have bought samples of our best machines, and are copying their strong points. I found many makers quite candid in admitting that we were streets ahead of them, and they are beginning to work on our lines. When they have all got hold of magneto ignition, mechanical inlet valves, proper engine attachments, straight tube frames, and reliable belts, which might occur within two years, they will not be far behind. But at present, thanks to their magnificent waterways and execrable roads, the motor boat is considerably more popular than the motor cycle. The American riders are obviously very fine riders, for, in spite of being so handicapped by the majority of their machines, they put up startling performances on the racing track, and the percentage of non-stops in their reliability trials is exceedingly good."



Continental

RUBBER NON-SKID

IMPROVED TYPE.

THE LEADING MOTOR CYCLE MANUFACTURERS'

STANDARD TYRE

FOR

1910.

Write for Booklet free on request.

Continental Tyre & Rubber Co. (Great Britain), Ltd., 102-108, Clerkenwell Road, London, E.C.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—9d. per line of 8 words; minimum, two lines. Name and address must be counted. Thus—

Two lines (16 words or less) costs 1/6
Three lines (24 words or less) costs 2/3
Four lines (32 words or less) costs 3/-

In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), on Tuesday morning previous to the date of issue.

When possible advertisements received at Coventry on the Wednesday will be inserted.

All letters relating to advertisement should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

No. 1926. 3½ h.p. VINDEC SPECIAL, magneto, Truffault forks; Peugeot engine; guaranteed .. £25 0
No. 1924. 8 h.p. J.A.P., M.O.V. low No. 6 Chater-Lea frame, 1909 model, Palmer Cord tyres, drip feed, and force pump lubrication; fast as new, too powerful for solo; guaranteed.. £38 0
No. 1922. 4½ h.p. TWIN MINERVA, powerful M.O.V. engine; guaranteed. First cheque.... £15 0
No. 1923. MONTGOMERY SIDECAR, cane seat, flexible; as new..... £6 10
No. 1921. MILLFORD CASTOR WHEEL SIDECAR, wicker seat; nice condition; complete with apron, guaranteed..... £6 10
No. 1920. 4 h.p. N.S.U., 1909 model, spring forks, and magneto; complete with Castor Wheel Sidecar (or can be sold separate); guaranteed..... £32 10
No. 1917. 3½ h.p. 1909 TRIUMPH, Palmer Cord tyres, condition like new; guaran. Lowest price £35 0
Two 1½ h.p. MOTOSACOCHES, low frame models, magneto ignition, late 1909 machines, condition as new; guaranteed ..... each £23 10
Three 1½ h.p. Lightweight F.N., complete with magneto and spring forks; up to date; all guaranteed ..... from £15 0
Eight 1909 3½ h.p. Standard REX Tourist models, brand new, complete with stand, carrier, tools, no plates; ready for the road; usual price £42. To clear ..... each £35 0
No. 1887. 3½ h.p. QUADRANT, magneto, spring forks, Birmingham make, smart, and good sound roadster; guaranteed £17 10
2¾ h.p. 1909 DOUGLAS, new last May, in excellent condition; guaranteed. Lowest price £25 0
Six 1½ h.p. MOTOSACOCHE Lightweight Motor Cycles; all guaranteed ..... from £12 10
Two 3½ h.p. HUMBERS, two speeds, 1909 models, magnetos, and spring forks ..... from, each £28 10
No. 1898. 3½ h.p. 1908 TRIUMPH, condition better than new, guaranteed at Wauchope's.. £32 0
No. 1894 & 1895. 9 h.p. BAT, and sidecar..... Offers
No. 1896. 9 h.p. RILEY Tricar, nice condition, side doors, three speeds & reverse, guaranteed £35 0
No. 1881. 3½ h.p. QUADRANT, magneto, low frame, splendid machine, guaranteed..... 19 Gns.
No. 1853. 4½ h.p. HUMBER Tricar, water-cooled, coach-built front seat, first cash..... 10 Gns.
No. 1874. 1½ h.p. MOTOSACOCHE, 1907 model, in nice condition; guaranteed £15 15
No. 1873. 2 h.p. 1908 MOTO-REVE, grey finish, smart machine; guaranteed ..... 21 Gns.
No. 1867. 3½ h.p. ARNO, two-speed gear and free-engine clutch, up-to-date machine, in new condition; guaranteed £32 10
No. 1861. 3½ h.p. BAT, sound machine, fit for the road; guaranteed £12 10
No. 1855. 1½ h.p. MOTOSACOCHE, perfect order, ready for the road; guaranteed ..... 15 Gns
No. 1847. 2 h.p. 1908 MOTO-REVE, twin-cylinder engine, spring forks, magneto ignition, splendid condition, direct V belt drive; guaranteed .. 19 Gns.
No. 1845. 3½ h.p. brand new PHELON & MOORE. 1909 model, two-speed gear and free engine. Offers.
No. 1842. 3 h.p. TRIUMPH, spring forks, 1906 model, nice condition throughout; guaranteed £16 10
No. 1837. 3½ h.p. 1907 MINERVA, smart machine; guaranteed £13 10
No. 1836. 2¾ h.p. MINERVA, 1907 machine, nice condition; guaranteed £12 10
No. 1835. 1¾ h.p. MOTOSACOCHE, mag. ignition, '09 model, spring forks, as new; guaranteed .. £23 10
No. 1834. 3½ h.p. TRIUMPH, 1909 model, magnificent machine; guaranteed £35 0
No. 1829. 3 h.p. SCOTT-JOWETT Two-stroke £25 0
No. 1828. 3½ h.p. 1909 TRIUMPH, all accessories, magnificent machine; guaranteed £35 0
No. 1826. Sidecar, rigid type, second-hand £4 4
No. 1814. 3½ h.p. MATCHLESS, magneto in tank, Druid spring forks, nice machine; guaranteed 20 Gns.
No. 1813. 3½ h.p. FAFNIR, nice condition, accumulator ignition, sound machine; guaranteed 9 Gns.
No. 1810. 3½ h.p. PEUGEOT in No. 6 Chater-Lea frame, low frame, torpedo copper tank, good, sound machine; guaranteed ..... 17 Gns.
No. 1801. 2½ h.p. 1908 Featherweight REX, nice condition, magneto ignition; guaranteed £17 0
No. 1764. 5-6 h.p. Four-cylinder F.N., 1908 model, good, sound condition; guaranteed. Price .. £25 0

Second-hand and New Bargains quoted in this column are offered for sale by WAUCHOPE'S. Dozens of bargains besides those quoted can be inspected on the premises at 9, SHOE LANE. Inspection is cordially invited.

WAUCHOPE'S,
9, Shoe Lane, Fleet Street
(off Ludgate Circus),
LONDON, E.C.

Telephone, 5777 Holborn. Telegrams, "Opificer, London."

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 0000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days, and if no sale is effected, each party to the transaction pays carriage one way. For transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmoreland.

F.N. 4h.p. 4-cyl. Motor Cycle, with the latest type of frame, footrests, and many additions and spares; first offer of £26, very cheap.—Rae, Thoroton St., West Hartlepool.

SECTION II.

York and Lancashire.

1910 Ariel, Douglas, Bradbury, Norton, F.N., Indian, Premier, N.S.U.—Gourlay, Fallowfield.

F.N., 2h.p., first-class condition, new back tyre, spares, £5 10s.—Lister, Burnedge, Whitworth, Rochdale.

WERNER 2¾h.p. Twin Lightweight, spring forks, good order; trial; bargain, £10.—Stanley Park, Roebuck Hotel, Bolton.

BRAND New 1909 Triumph, Dunlops, complete; £—Cross, Triumph agent, Rotherham.

1909 Brown, 3½h.p., Druid forks, B. and B., handle-bar control, fine order; £29.—Cross, Triumph agent, Rotherham.

1909 Triumph, R.O.M. tyres, fine order, headlight, horn, tools, numbers; £36. — Cross, Triumph agent, Rotherham.

3½h.p. Minerva, spring forks and seat, handle-bar control; £12.—Houghton, fishmonger, Rotherham.

3½h.p. Spring Bat, good condition; reason for selling £8.—Newsagent, 224a, Kensington St., Girlington, Bradford.

3½h.p. Brown, £10; 3½h.p. Fafnir, £10; 3½h.p. Humber, with forecar attachment, £12.—20, Potternewton Lane, Leeds.

1909 Special Show Model 5h.p. Twin Rex, condition and appearance like new; bargain, £35.—Particulars given on application, Hartley, 47, Walnut St., Southport.

LIVERPOOL Motorists should, to protect their interests, buy Triumph, Douglas, Scott, and F.N. motors only from the responsible official agents, Hitchings, Ltd., 74, Bold St., who alone can substantiate the makers' guarantees, and also supply spare parts from stock.

TRIUMPHS.—Hitchings, Ltd. (the official agents), have several second-hand machines for sale at low prices, 1907, 1908, and 1909 models; all guaranteed; inspection invited.—Hitchings, Ltd., 74, Bold St., Liverpool.

SCOTT 2-stroke 2-speed Water-cooled Motor Cycles (of which Hitchings, Ltd., are the sole Liverpool district agents) should be ordered now to ensure early delivery; send for descriptive catalogue.—Hitchings, Ltd., 74, Bold St., Liverpool.

LIGHTWEIGHT Douglas and F.N. motors, latest models in stock at 74, Bold St., Liverpool.—Hitchings, Ltd., are the sole agents, and invite enquiries.

MINERVA and Rex.—We carry the largest stock of spare parts in the provinces for these machines, can deliver new machines from stock at low prices, cash, exchange or gradual payments; charged accumulators for hire, 1s. per week. — Cookson Bros., 5, Chester Rd., Old Trafford.

In answering these advertisements it is desirable to mention "The Motor Cycle."

THE MOTOR CYCLE SUPPLEMENT

ROTARY VALVE ENGINES.

"THE use of the rotary valve for internal combustion engines is far older than seems to be supposed, and, considering that the existing conditions are much the same as they were some years ago, when these valves were not successful, it will be matter for surprise if they should succeed now. A combined rotary inlet and exhaust valve operating between twin-cylinders was used by a firm in Cleveland, Ohio, as far back as 1902, but was abandoned by reason of its rapid deterioration through wear.

"The valve and seating were both ground by an expensive Brown and Sharpe grinder, and made as perfect as could be. The valve also ran in an oil bath. Despite these precautions it soon became leaky. The old Dawson rotary piston engine was about the best. It was at once a rotary valve and piston sleeve, and, so far as this function is concerned, was satisfactory."

So writes our valued contributor "Incandescent," but we think that he is unaware of, or has forgotten, the Butler rotary valve, which was the invention of Mr. Edward Butler, one of the pioneers of the British motor industry, who exhibited a motor tricycle at the Inventories Exhibition in 1884, which was known as the Butler petrol cycle. Later he invented the conical rotary valve, and this was fitted to a large number of Clark-Chapman gas engines, and it is still in regular use on these engines. Mr. Butler also applied the rotary valve to the engine of a Bollée tricycle as early as 1899, so that it will be seen he long ante-dated the American inventors. These Butler rotary valves have been quite satisfactory, but the objection to them from the motorist's point of view is that they must always be lifted from their seats when stopping; otherwise the unequal expansion of the metals of which the valves and their seatings are made results in binding and even seizure of the two surfaces. On the other hand we do not know that the Butler rotary valve has been found to possess any special advantages over the poppet type. It undoubtedly had advantages of its own for the purpose for which it was originally introduced, as each valve could be arranged to serve two cylinders. From the motor cyclist's point of view the great attraction of the Butler conical rotary valve would be the fact that it would never require grinding, as it performs that operation automatically in the course of its ordinary working. A similar rotary valve to the Butler was described and illustrated in *The Motor Cycle* of April 7th, 1909. This was patented by Mr. A. H. Williams, Chester, and a contributor's experiences with it were published in the same year on page 322, May 15th. The rotary valve on this engine had to be copiously oiled, and the cylinder was provided with an auxiliary exhaust release.

A.C.U. AND AFFILIATED CLUBS.

On December 31st last forty-eight motor cycle clubs were affiliated to the Auto Cycle Union, the number of riders represented, including the membership of the A.C.U., being 2,674. The corresponding figures of 1908 were thirty-six organisations representing a membership of 2,253. It will thus be seen that in twelve months twelve new clubs, with a total of 421 members, have thrown in their lot with the A.C.U.

MOTOR CYCLING CLUB.

Below will be found the fixture list for 1910. Encouraged by the large number of entries for the races and gymkhana events at Brooklands in the late autumn, the M.C.C. has engaged the Brooklands track for Saturday, June 4th, 1910. It is proposed to run a sporting club programme on similar lines to the last series, namely, races for cycles and cars, and gymkhana events. It is also hoped to include an invitation match for crack top speed merchants.

Mar. 12th.—Opening run to Brighton.
At Easter. Easter tour. Jarrott cup competition.
Apr. 30th.—Members' hill-climb.
May 13th, 14th, 16th.—London-Edinburgh and London-Edinburgh and back runs.
,, 28th.—Car competition for Albert Brown trophy.
June 4th.—Race meeting and gymkhana at Brooklands for cars and motor cycles.
,, 18th.—Inter-team trials for *The Motor Cycle* cup.
,, 25th.—Petrol consumption trial.
July 23rd.—Twelve hours' trial.
Sept. 10th.—Members' hill-climb.
,, 28th.—Brooklands A.R.C. Easter Meeting.

FUTURE EVENTS.

Jan. 6th.—Essex M.C. Paper on "Magnetos," by Mr. A. Bennett, Great Eastern Hotel, Liverpool Street, E.C.
,, 7th.—Western District M.C. Annual General Meeting.
,, 13th.—A.C.U. "The Problem of the Private Owner." A paper to be read by Mr. P. W. Bischoff.
,, 15th.—Essex M.C. Annual Dinner.
,, 20th.—A.C.U. annual dinner. Waldorf Hotel, H.S.H. Prince Francis of Teck, G.C.V.O., D.S.O., presiding.
,, 29th.—A.C.U. Quarterly Trial, Uxbridge to Banbury and Back.
,, 29th.—Birmingham M.C.C. Annual Dinner.
,, 29th to Feb. 5th.—Scottish Cycle and Motor Cycle Show, Promenade Hall, Edinburgh Marine Gardens.
Feb. 3rd.—Royal A.C. and Associated Clubs' Second Annual Dinner.
Mar. 12th.—M.C.C. Opening Run.
,, 25th.—General Meeting of Northern Motor Cycle Clubs at Richmond, Yorks.

Current Chat

The New Year.

A happy and prosperous New Year to all our readers!

The Editor wishes to thank numerous readers who have sent Christmas and New Year greeting cards.

Eighth Year of "The Motor Cycle."

This issue commences a new volume—No. 8—of *The Motor Cycle*.

Lamp Lighting Times.

The times to light lamps for this week are:

Jan.	3rd	5.1	p.m.
,,	5th	5.3	p.m.
,,	7th	5.6	p.m.
,,	10th	5.10	p.m.

America Claims World's Speed Record.

Mr. E. L. Ovington (formerly president of the F.A.M., and at present a member of the F.A.M. Competitions Committee), who is now in this country, claims for Fred Huyck (one of the most successful American riders) the fastest speed ever accomplished on a motor bicycle. When he made his marvellous record of a full mile in 42⅗s., *i.e.*, 84½ miles per hour, on a 7 h.p. Indian, on a three-lap track, Huyck covered the second lap in 13⅕s., equal to a speed of 90.91 miles an hour. These figures have been specially pointed out to us to prove that it is not necessary to have a "freak monster" in order to capture world's records for a motor bicycle. The same remarks apply to racing motor cars; the vehicle with the biggest engine is not necessarily the fastest.

A New Convert.

Mr. J. D. Rockefeller, jun., son of the multi-millionaire, has been won over by the motor bicycle. He was seen recently riding through Tarrytown, N.Y., attired in a khaki suit, with a sweater under his coat. He was not exceeding the speed limit!

Motor Cycle Repairers.

The A.C.U. Touring Department is now appointing motor cycle repairers throughout the country. The first to be appointed was that well-known racing man, Dudley R. Clarke, of the New Century Motor Co., St. Albans. Complaints having been received as to the want of attention on the part of some general repairers when dealing with motor cyclists, a letter has been sent to the firms in question warning them that, unless the same attention is given to a motor cyclist as to a car owner, the appointment will be withdrawn.

Two Clubs Amalgamate.

The St. Albans and District M.C.C. is now formally amalgamated with the Hertfordshire County A.C., and the result is a very strong motor cycle section of the latter body. Some open competitions are on the *tapis* for 1910.

The ubiquitous motor cycle in Nyassaland. At one time the natives scampered for the nearest place of retreat at the sound of a motor cycle, but judging by their intent gaze on the Fairy motor bicycle in the illustration, they have now mastered their former fears. Incidentally, the machine (which is owned by Mr. Norman, of Blantyre, Nyassaland) has been running since 1908 quite satisfactorily, although the roads are by no means of the best.

Licences for Motor Cycles.

It is not generally known that [illegible] for motor vehicles need not nec[illegible] be taken out in the county in wh[illegible] owner resides. Consequently it [illegible] legitimate and perfectly rea[illegible] course for automobilists and motor[illegible] who have been subjected to unne[illegible] persecution and expense, not [illegible] the payment of fines which a fair-minded bench would never inflict, but also in the wear of tyres on roads purposely neglected for the object of keeping motorists away, to take out their licences in unprejudiced counties. Some county councils, recognising that a good deal of their revenue may possibly be lost by motorists taking out their licences in different counties, issued notices last week, marked "Important," urging licencees to take out their licences at post offices within their respective counties, and pointing out that the produce of these licences is handed over to county councils for the benefit of the county rates. Readers in Warwickshire, Su[illegible] Buckinghamshire have sent us the notices they have receive[illegible] can Warwickshire, Bucks, an[illegible] fairly ask for the licences to [illegible] out in their counties when sev[illegible] of direct persecution have co[illegible] the notice of our readers? [illegible] words, they now ask for con[illegible] when they have given motoris[illegible] sideration at all—that is, of [illegible] sort! For that reason, we [illegible] motor cyclists who reside i[illegible] counties to be guided by [illegible] knowledge and feelings in taki[illegible] 15s. licence. It is certain [illegible] numerous motor cyclists who,

M. [illegible] numer[illegible] mount[illegible] Indian. [illegible] are ca[illegible]

Special Features

Water Cooling on Motor Bicycle Engines.

Tuning Up.

A Week-end Trip in India.

Motor Cycle Records, 1909.

stly fined in certain notorious ties will go far away to renew their ces, and this may bring the benches to senses, for each year these licences to many thousands of pounds. egards car owners, whose licence per varies from £2 2s. upwards, a list of an" counties in England and Wales published in Saturday's issue of *The Autocar*, and motorists were recommended to renew their licences in the counties named.

, one of our tates. He is chain-driven t no numbers

A.C.U. Annual Dinner.

Those members and affiliated members of the Auto Cycle Union who intend to be present at the annual dinner at the Waldorf Hotel on Thursday, January 20th, should notify the secretary immediately. An excellent musical programme is to be given during the evening, and the speeches will be few, but doubtless interesting, as usual. The A.C.U. president, Prince Francis of Teck, G.C.V.O., D.S.O., will be in the chair.

On the Warpath.

No less than six ans have been entered for the Inter- onal Tourist Trophy Race. As has reported, two entries have been ved from W. H. Wells, with, in tion, three from the Hendee Mfg. who are sending over American rs (probably F. Huyck, Derosier, and Goerke), and one from W. O. Bentley. virtue of his win in the last race, A. Collier is entitled to start first he T.T. Race this year.

Jarrott Cup Competition.

iis year the M.C.C. long-distance for the Jarrott Cup will be held at er, and it is expected that more ies will result.

The Friendly Match.

In *The Motor Cycle* last week, Mr. F. H. Mullett offered to ride his Triumph against Mr. H. C. Tromp van Diggelen's Wanderer at Brooklands or the Stadium for any distance Mr. Diggelen liked to name, the challenge being the outcome of the latter's contention that in the last race he had not sufficient distance in which to attain his best speed. After going to press with our correspondence pages, we received the following letter: "I have read Mr. Mullett's letter in the last issue of *The Motor Cycle*. To settle all paper arguments I will agree to meet Mr. Mullett as well as any other private rider of a 3½ h.p. standard touring machine on the Brooklands track, the distance to be not less than fifty miles, with a standing start. The race to take place during March or April. (Signed) H. C. Tromp van Diggelen."

Will the Wanderer Win?

Writing from Odessa, Mr. A. H. King (who owns two motor cycles) says: "I see Mr. Tromp Van Diggelen lost his race, but I believe he will still make the challenge good. Certainly a Wanderer can show a clean pair of heels to anything here."

New Speed Limits.

The following ten-mile limits recently came into force: Sawbridgeworth, Herts, main London to Cambridge road, from Hoestock Lane to a point ten yards north of the junction with Barker's Lane; East Grinstead, Sussex, main London to Lewes road, from the middle of the bridge over the Tunbridge Wells and Three Bridges Railway to a point twenty yards east of the junction with College Lane.

Alteration of Date of Stanley Show.

Since we announced the date of the 1910 Stanley Show, the directors, after careful consideration, have decided to advance the dates slightly. November 11th to 19th, both dates inclusive, have now been decided upon, the change being consequent upon the proposed alteration in the date of the Olympia Motor Show, it having been the practice of the Stanley Show to arrange a date so that country and foreign visitors could attend both shows at one visit.

Ball Bearing Crankshafts.

Respecting the influence of the design of motor bicycles on motor car construction, Mr. S. F. Edge writes to *The Autocar* that there is one point in comparing the use of ball bearings on the crankshaft of motor bicycles and motor cars which has not been dealt with, and that is the reason why he considers that the ball bearing crankshaft has not been very successful with motor cars, viz., the fact that it has a tendency to make a noisy engine.

"THE MOTOR CYCLE" IN THE SOUTH AUSTRALIAN BUSH.

Leonard Bentley (brother of the three enthusiastic amateur motorcyclists, A. W., H. M., and W. O.) He has written on the back of the photograph: "*The Motor Cycle* is a boundary rider's comfort back in the N.E. or never never country, South Australia."

CLUB NEWS.

Middlesbrough and District M.C.C.

On the 12th inst., at the Corporation Hotel, Middlesbrough, Mr. J. Bellerby will read a paper entitled "Benzol—Its Constitution and Best Methods of Using." Members are invited to take their friends to the lecture, which commences at 7.45 p.m.

Sutton Coldfield A.C.

The annual dinner of the above club will take place on Saturday next, the 8th inst., when it is hoped that a goodly number of members and friends will attend. The Mayor (Councillor T. H. Cartwright) has kindly promised to preside, and the Mayoress has graciously consented to present the prizes won during the past season. Messrs. J. W. Orde and H. Gillard Cove have also promised to attend.

As arrangements will shortly be made for calling the general meeting of the club, the hon. secretary, Mr. H. R. Lane, will be glad to hear from motorists (both car and cycle owners) in the district who are desirous of joining. His address is The Beeches, Anchorage Road, Sutton Coldfield.

Western District M.C. (London).

The committee sincerely hope that every member of the club will endeavour to be present at the annual general meeting, to be held at the Milford Hotel, London Road, Spring Grove, Isleworth, on Friday next, the 7th inst., at 8 p.m.

There are several important questions to decide, and it is very desirable that all the members should meet together in order to voice their views on matters relating to the club, and take part in the election of officers and committee for the ensuing year.

Copies of the agenda may be obtained from the hon. secretary, Mr. F. H. Mullett, 53, Kingsley Avenue, West Ealing, W.

Sunderland and District M.C.C.

A well attended smoking concert was held at the Grand Hotel, Sunderland, Major Vaux, D.S.O., presiding, when the successful competitors in the various competitions were awarded the prizes as follows: Speed-judging competition, held on May 12th, distance 12 miles—E. J. Tiffin. One hundred miles non-stop run for the Vaux Challenge Shield, in June last—F. Turvey, jun., 1; E. J. Tiffin, 2. Reliability run to Wakefield and back, on July 17th, for the Turvey Challenge Shield—J. Jack, 1; E. J. Tiffin, 2; F. Turvey, jun., 3; and Q. Nichol, 4. Speed-judging competition over twenty miles circular course—E. J. Tiffin. 1; F. Turvey, jun., 2. In a run held in conjunction with the North-Eastern Automobile Association and the Newcastle Motor Cycle Club, three first prizes were secured by members of the club, the successful competitors being F. Turvey, J. Jack, and E. J. Tiffin.

Hertfordshire County A.C. (Motor Cycle Section).

Members are asked to please note that the headquarters of the club are the Red Lion Hotel, St. Albans.

A club room comfortably furnished and replete with papers, writing accommodation, etc., for the convenience of members and their friends, will be ready for use in the course of a few weeks. A special tariff has also been arranged with the proprietor of the hotel, particulars of which will appear in the handbook.

The committee elected by the members at the annual general meeting on December 17th is a very representative one, and all are enthusiastic amateur motor cyclists.

The club is now in a very strong position, and the number of prospective new members, who are to be elected at the next committee meeting, promises well for the future success of this organisation.

A novel feature of this year's programme will be a series of inter-county team competitions in various parts of the country.

Readers desiring further information respecting the club should apply to the hon. sec., Mr. C. C. Cooke, North Mimms, Hatfield, Herts.

Bolton and District M.C.C.

The annual general meeting has been fixed for January 19th. Arrangements are being made to have a lantern lecture on "Magnetos" after the annual dinner, which latter event has been fixed for February 2nd.

Edinburgh M.C.C.

The fourth annual dinner will be held at the Carlton Hotel, Edinburgh, on Friday, January 21st, 1910, at 7.30 p.m. The price of the tickets is 4s. Members requiring extra tickets can obtain them from the hon. sec., Mr. G. J. Ewen-Watson, 63, Queen Street, Edinburgh.

Essex M.C.

The second of the series of papers included in the winter programme will be given on Thursday, the 6th inst., when Mr. A. Bennett will give a lecture on the high tension magneto, Lantern views will be used to illustrate the lecture, which will take place at the Great Eastern Hotel, the chair to be taken by Mr. F. J. Jenkins at 8 p.m.

North-west London M.C.C.

The third annual dinner at the Criterion Restaurant, with the president, Mr. W. Pidgeon, in the chair, was an unqualified success, a large number of members and friends (including ladies) being present. Both the chairman and Mr. Williams reviewed the work and progress of the club during the past twelve months, pointing to the satisfactory growth of membership and increase in the entries received for the various competitions. Mr. Straight represented the Auto Cycle Union, and Messrs. Brighton. Rowden, and Middleton also spoke. Miss Muriel Hind gave away the numerous prizes with as much ease and charm as if she were doing fastest time in a hill-climb.

The members received a grievous shock when Mr. A. Stanley Phillips announced his intention of resigning the captaincy, owing to pressure of business. Mr. Phillips has been captain since the inception of the club, and its success is in a great measure due to his untiring energy.

An Address Wanted.

Can any reader furnish us with the address of the makers of the Givandan engines, or an address where spare parts can be obtained?

The Tourist Trophy Race.

Entries for the T.T. Race now total eleven, the latest entries to be received being one from C. B. Franklin, and three from the Triumph Cycle Co., Ltd.

The New T.T. Capacity Limit.

The decision of the A.C.U. to limit twin-cylinder engines in its competitions to 670 c.c. has led to the Rex Motor Manufacturing Co., Ltd., issuing a notice to the effect that motor cyclists requiring engines of 670 c.c. capacity instead of the standard Rex type (which is 750 c.c.) can be supplied with same without extra charge.

Motor Cyclist v. Roller Skater.

An interesting race was arranged to take place on Saturday evening at the Dragoon Roller Skating Rink, Harrogate, between H. D. Anslow on roller skates and Fred Mackay on a 2¾ h.p. Rex motor bicycle. Mr. Mackay is one of the most consistent riders of a motor cycle in the North. It was not anticipated that high speeds would be attained as the rink is only eighteen laps to the mile.

A Warning.

Readers are warned against sending cash, post-dated cheques or money orders to advertisers of well-known machines when such machines are offered at ridiculously low prices somewhere in the neighbourhood of less than half their market value. We have had proof within the last week or two that several readers have been victimised in this manner, and we would again urge the necessity of adopting our deposit system, which was purposely inaugurated to prevent fraudulent dealing.

THE MOTOR CYCLE

Vol. 8. No. 355. Jan. 10th, 1910.

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ADDRESS—20, TUDOR STREET, LONDON, E.C.

The Show Question.

WHATEVER the decision of the bulk of the motor cycle industry with regard to the show question, the rider and purchaser of motor cycles is chiefly interested in how the machines he rides will be displayed and where they will be housed. In trade circles the question of the hour is, Will there be two shows for cycles and motor cycles this year or only one? The amateur motor cyclist, to whom this journal particularly appeals, is not interested in trade discussions as to how long this or that exhibition has existed and which ought to have the support of the industry, but he wants to know where the exhibition is to be held, and more particularly he desires to impress on all concerned that he wishes a voice in the method of organising the show. The rider and buyer is, in our opinion, not sufficiently considered in these matters. He cannot, of course, expect to be directly represented on a committee of management having the organisation of the exhibition under its control; but his grievances should be listened to, and if he desires a certain arrangement of the exhibits, or a change in the situation or date of the show, he should not be ignored. After all, who enables the show to be held? Is it the agent and dealer who goes to the show to talk about next year's trade and to see what changes have been made in design, and perhaps to place an order, or is it the rider? Doubtless the answer is "both," but without the rider there would be no necessity for the dealer and agent; and if the management of a show was assured from the commencement that riders would not attend, it is improbable that the show would be held for the trade alone. For that reason the rider should receive rather more consideration than he does at present. One of the first things is to separate pedal cycle and motor cycle exhibits; this action would be appreciated by both pedal and motor cyclists. The next is to advertise the motor cycle side of the show more, and give motor cyclists a better chance of knowing that the show, wherever it is held and whoever are the promoters, is essentially a motor cycle exhibition, and not a pedal cycle show with motor cycles as a side-line. The date of the exhibition should also receive the most careful attention of all concerned. At present the date is one selected as the most convenient for the manufacturer. The busy season is over and new designs are practically settled; he can therefore show the new models, and any point which receives adverse criticism can be altered before the time of heavy and urgent deliveries is upon him. It is very questionable, however, if the date is a good one for private purchasers, and a show a little later would probably suit the trade as well, and result in far more business being done with the actual riders of the machines and users of the various accessories. At present the Stanley Show and the Cycle and Motor Trades Association may both hold a show in 1910, but the projected combined show of motor cycles and pedal cycles, which the Cycle and Motor Trades Association wished the Society of Motor Manufacturers and Traders to hold at Olympia, will not take place, because at the general meeting of members of the latter body, a sufficient majority was not in favour of altering the articles of association to render it possible.

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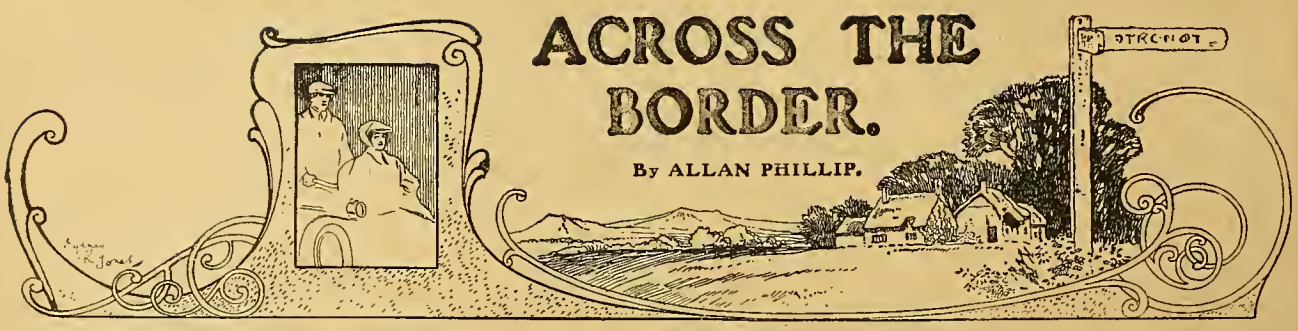


ACROSS THE BORDER.

By ALLAN PHILLIP.

THERE may be many English motor cyclists who would gladly ride across the Cheviots and explore the land of the Scots, but who are deterred from so doing either by the thought of the mountainous nature of the country, or the time required to reach the Border from the Metropolis. The latter is often a deterrent, particularly when the vacation happens to be a short one. Anyone, however, wishing to make acquaintance with some of the finest scenery in Great Britain may be interested in the following description of a short tour undertaken on a low-powered tricar. The route followed is easily within the abilities of any low-powered machine, be it bicycle, tricar, or sidecar. Over the whole distance an old-pattern 3½ h.p. Rex with detachable forecarriage carried my wife and myself, and I cannot remember one hill on which it was necessary for my passenger to dismount.

The Border Bridge, Berwick-on-Tweed.

We crossed the Border separating England from Scotland at the historical town of Berwick-on-Tweed, by the old stone bridge, from which is obtained such a fine view both seaward and landward; then made our way through two or three narrow streets and up the long hill that runs through the heart of Berwick, and so on under the span of its ancient walls.

As soon as the town is left behind it is well to leave the motor and walk across the fields on the left-hand side of the road as far as the edge of the bluff. From this vantage point a fine view is obtained of the Border Bridge, with its twenty-eight arches spanning the famous Tweed.

Sir Walter Scott's School.

From Berwick to Kelso the road is good, and in five miles we touch land made sacred by the memory of Sir Walter Scott; in a house adjoining Kelso Abbey the famous poet and novelist passed his schooldays.

Dusk was giving place to darkness when we filled up the tank with petrol at Kelso and rode onwards for Melrose. Owing to the darkness we only saw the scenery bordering this road by the aid of the light of our lamps, and after torrential rain, but I imagine it must be delightfully pretty. At this point our enjoyment was somewhat marred by the slipping of the belt owing to the wet; it was a leather belt, and a little earth from the roadside rubbed on to the sides helped it to grip, but, I fear, did not improve the surface of the pulley groove.

By the aid of illegible signposts, the meaning of whose names we vainly strove to decipher in the light of a detached lamp, we pressed on, or rather groped our way, towards St. Boswells. Dropping into the valley, we ploughed our way through flooded roads and under dripping trees towards the far-off lights of Melrose.

It was 11.30 p.m. when we rode into the town; all was silent, deserted, and dark, and the music of the exhaust echoed and re-echoed among the walls and houses. We pulled up in the Market Square, but there was not a sound or sign of life, and, although we had previously engaged rooms, we had no idea where to find them. Then out of the darkness there emerged the solitary figure of a man, who proved to be our salvation and the provider of all our needs. His was the shed wherein we stowed our steed, his were the steps that guided us to our abode, and his the hand that bore the burden of our luggage; and —were he not a Scot I might say "wonderful to relate" —he would take nothing for his pains!

Our hostess, giving up all hope of seeing us that night—it was now well past midnight—had extinguished the light in her house and retired for the night. All was dark and silent. Repeated knocks at length had their desired effect, and the door was opened. Were we met with muttered oaths? No! but with a Scotch welcome—kindly and unfeigned. She made us hot coffee, and rested not till we were comfortable for the night. May it be that our first two acquaintances across the Border will be such as my readers will ever find when they seek the hospitality of Melrose.

Across the Border.—

Much time may be spent at Melrose. There is its abbey to be inspected, the Eildon Hills to be climbed, and Dryburgh Abbey, nigh at hand, should certainly not be missed, while Abbotsford stands imperatively upon the programme.

The Forth Bridge, looking south.

I do not know a finer section of road in the kingdom than than between Melrose and Galashiels. The latter town is scarcely touched, and the road bends north toward Edinburgh.

At Galashiels a tappet broke, and we spent an hour in the hot sunlight replacing it by a spare one, a damaged tappet which had been discarded once; but it carried us many miles, and I still carry it as an emergency stand-by.

Our road now ran through charming scenery. The River Gala was on our left, and the road was shaded by trees for mile after mile. Delightful quarries, silent and deserted among the trees, make ideal spots for a wayside lunch.

We now commenced the long, gradual rise up to Heriot; but at no part is the gradient severe. Through Stow, with its pretty bridges, we passed, and thence onward to the bleaker country on the hill tops. From Heriot a long and mostly downhill run took us into the crowded streets of Edinburgh, thence on to Queensferry and the shore of the Firth of Forth. We were ferried across the Forth by steamer, and from its decks obtained a splendid view of the Titantic Forth Bridge, that mighty engineering feat which everyone who visits Edinburgh goes to see if he can reasonably spare the time. In fact, it is one of the sights of Edinburgh; although not in the city, it is in very close proximity to it.

Having landed and climbed the hill beyond the Forth, at a bend in the road we had a fine backward view of the bridge, stretching like a mighty centipede across the waters of the Forth.

For the next hour or so the journey was over the least interesting portion of the whole route, Loch Leven on our right alone calling for attention.

The monotony of the ride to Kinross was broken for us by the only accident we have ever had. We were mounting a fairly steep hill at a smart pace when we met a large herd of cows descending. They divided into two columns, and left the whole road clear; but somehow as we neared the middle of the herd they closed in suddenly and unexpectedly from the left, and charged directly across our path. We missed the first cow, just grazed the second somewhat severely, and charged the third broadside on with considerable force. The whole affair occupied so short a time that I had scarcely thought to apply the brakes before we came to an involuntary stop.

My wife disentangled herself from the cow, which rejoined its companions, and, luckily for us, we escaped without personal damage. The poor tricar, however, suffered a broken bolt and a much-distorted frame. The bolt was replaced at Kinross, but the distortion cost me two new outer covers before we reached home, owing to faulty alignment of the front wheels.

Beyond Kinross we again entered lonely country, and the ride through Glen Farg will always be a memorable one for us. Perth was bathed in the light of a golden sunset as we entered through its "Inches," and early morning saw us again on our way, this time *en route* for Dunkeld and Burnham, and thus to Aberfeldy.

Aberfeldy lies in the very centre of a paradise of excursions. We had time for none, but a day or two might very enjoyably be spent in the locality, and the Falls are worthy of a visit if all else be missed.

By the time we reached Loch Tay rain was falling heavily, and a strong head wind was blowing. A gale from the west was sweeping over the loch, raising waves which rolled wildly towards the shore and broke in spray on the stony beach. Over rough and swamped roads we reached Lawers' Hotel, but did not stay. It was a drenching ride and hard, for the shrieking wind beat the blinding rain unmercifully in our faces, and it was dusk when we reached Killin. Even in that driving mist and cold wind we could not fail to

Holyrood Palace, Edinburgh.

Across the Border.—

admire the beauty of the loch, dark under those heavy storm clouds, and the frowning mountain partly hidden in the mist.

Hemmed in by Beauty Spots.

Killin itself is simply hemmed in by beauty spots—the Glen of Lochay, the Forest of Mamlorn, and the

In Glen Farg.

Misty Glen among others. In fine weather Killin would make a tourist centre hard to beat, and the accommodation is excellent.

The following morning in falling rain we passed over the pretty River Dochart, and along the very passable mountain road, through exquisite scenery of mountain, lake, foaming river and sombre pine, to Crianlarich. In sunlight, the whole of this route must be a paradise of loveliness.

At Crianlarich the rain ceased and the hot sun streamed through the steaming air. We threw off our mackintoshes, and, delighting in the freedom, regaled ourselves with a wayside meal, with the inimitable vista of hill and vale and receding storm cloud spreading out before us.

In spite of rain and heavy roads, our little Rex

Bridge at Aberfeldy.

ran magnificently all the way, causing no anxiety and little thought. It was at this spot that we turned south towards Loch Lomond. The country here is very black. One feels the weirdness of mountain loneliness and moorland solitude, but there is a glorious inspiration in the very desolation of the place.

The River Falloch runs beside the road, murmuring over the stones or roaring like distant thunder as it pours heavily over a shelving ledge into the deep pool beneath. Lovers of the beautiful will do well to dismount once or twice and cross the grass to the water's edge to appreciate the charming bits of scenery all along the river's course.

A Tempting Section of Road.

The run from Crianlarich to Ardlui is downhill, and so easy going that one is tempted to hasten. It seems a shame to check speed on such a gloriously easy road, but either exhilaration of speed or enjoyment of the beauties of nature must be sacrificed. It is a matter of personal choice.

Soon the road dips down into the verdure of the trees, and the scenery at the head of Loch Lomond and along Glen Falloch is worthy of full admiration.

But there is better yet to come. At Ardlui we come upon "the shining levels of the lake," and now

Loch Lomond, at Ardlui.

for nearly twenty miles the road wound along the margin, with fern-clad rocks and trees on our right and the silent lake below us on the left.

At Tarbet, halfway along the loch, steamer may be taken across to Inversnaid for the Trossachs, but motors are not allowed on the Trossachs roads. We continued south through Luss, then round the southern end of the lake through Balloch.

Near Luss we experienced an act of kindness which I trust will always be characteristic of motorists. An outer cover of one of the front wheels burst, and while we were seeking to remedy the defect a chauffeur from a neighbouring estate, seeing our difficulty, escorted us into his master's garage, and thoroughly repaired the damage; nor would he accept any payment for his trouble, but sent us forth with best wishes for our journey.

We reached Gartocharn as night closed down over us, and were compelled, very much against our will.

Across the Border.—

to put up at what appeared to be the only hotel. Our previous houses of call were not hotels, and it

Falls of Falloch, near Loch Lomond.

has always been my experience that good accommodation is to be had outside hotels, if you only know where to go.

In the morning we passed through Drymen, and then on to the Stirling Road. This is a magnificent road—long, straight, and level, and, I think, devoid of police traps, or else we were fortunate. The temptation to scorch was irresistible, especially with a strong wind behind!

At Stirling I fitted a new cover, and thence we journeyed through Falkirk and Linlithgow to Edinburgh.

The Homeward Journey.

The journey from Loch Lomond to the Border may be varied in many ways. We followed the route indicated, owing to special circumstances. The distance from Berwick to Edinburgh by this route is about seventy-five miles, and the round from Edinburgh to Crianlarich and back about 200 miles. This route gives one a very fine idea of Scottish scenery—mountain, loch, and forest land, as well as touching some of the most important towns, and most interesting archæological centres beyond the Border.

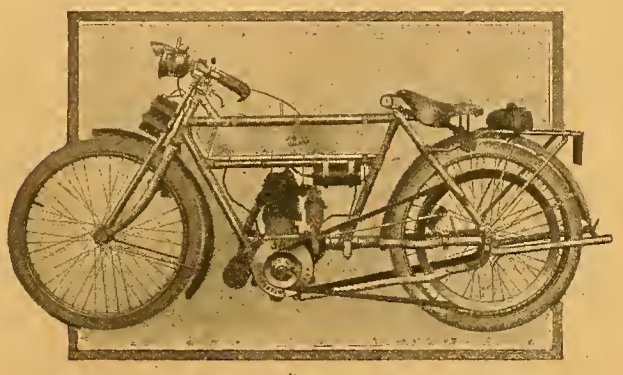
Hotel accommodation is excellent, and we found private apartments comfortable, reasonable, and easy to obtain.

Only once did we fail to find shelter for our tricar, and all one stormy night we left it in a yard, uncovered and open to the road on the wilds of the Lammermuir Hills, near Heriot, guarded by four faithful dogs.

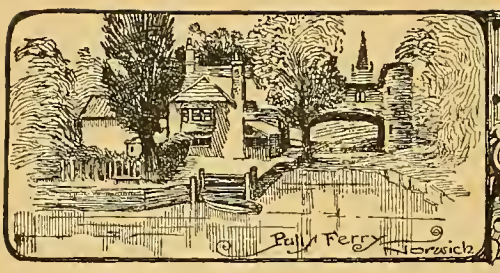
A SIMPLE PROCESS FOR SOLDERING ALUMINIUM.

FOR a long time it was supposed that it was impossible to solder aluminium. Lately, however, one or two methods have been evolved which have been satisfactory, but among amateur repairers we do not know of any which has become popular. A new aluminium solder, however, has been brought out by the Standard Alloys, Ltd., Carpenters Road, Stratford, E., which is quite easy to work. The solder is sold in sticks, and to apply it to the two pieces of aluminium to be soldered it is only necessary first of all to clean the two pieces and to heat them in a blow flame, taking care to let the flame play upon the surfaces to be joined instead of the solder. When the correct temperature has been reached it is necessary to rub the solder on the parts, over which it will flow evenly, tinning them in an effectual manner. When the solder has run properly it should be brushed over once or twice with a metal brush. Each part should be tinned in the same way, and when it is required to join them together it is only necessary to heat them to such a temperature that the solder is melted, and then press the two parts to be joined firmly together, when in a few minutes they will be cool and an exceedingly firm joint will be made. We were shown two pieces of aluminium tube joined together end to end so strongly that a powerful man could not separate them. In most cases it is desirable to use clamps to hold the two surfaces together. Motorists who try this solder should bear in mind that aluminium retains heat, and it is necessary to take precautions to prevent burns which might easily result. Readers will be interested to know that on the occasion of the A.L. solder being demonstrated at these offices one of our staff made a very fair job of soldering two pieces of aluminium together at the first attempt.

The Tourist Trophy model illustrated is a 3½ h.p. Trump-J.A.P., made by the Liphook Motor Engineering Works, of which F. A. McNab, the well-known rider, is the proprietor. The 85 × 85 mm. engine has ball bearings to main shaft and big ends. The carburetter is a J.A.P. automatic, handle-bar controlled, and the ignition by Hellesen dry battery and Hellesen plain coil. The weight of machine as illustrated is 130 lbs., and any of them are said to be capable of 60 m.p.h. on Brooklands when delivered to customers. The machine is finished French grey. Michelin or R.O.M. 26in. × 2in. wired on tyres are supplied to order. The hubs and fittings are Chater-Lea. A standard touring model is built on exactly the same lines, but fitted with bigger tyres, Druid spring forks, Bosch magneto, and ordinary plain bearings to the engine.



A semi-racing model 85×85 mm. Trump-J.A.P. Note the extra stays from rear axle to the base of crank chamber, giving greater rigidity to the engine.



Occasional Comments.

By Ixion.

Rigid Transmissions.

I see Mr. Wharton Metcalfe is appealing for more exactness in wording descriptions of so-called "rigid" transmissions. To be perfectly exact, there are only one or two motor vehicles in the world which can strictly be said to own "rigid" transmissions. There are one or two cars on which the clutch is mechanically locked when a gear is "in," and there are also, I believe, one or two four-cylinder motor cycles on which the transmission forms an absolutely rigid connection between engine and rear wheel all the time. In ordinary practice the term "rigid" is employed to distinguish transmissions possessing one or two points at which slip may take place from other transmissions which allow of slip throughout. Thus for most people a car with cone clutch and gear drive would possess a "rigid" transmission; so would a chain-driven motor cycle with a "spring sprocket" or a "friction sprocket," while all belt-driven motor cycles would rank as "non-rigid."

In the case of motor bicycles the objection to a completely rigid or partially rigid transmission is that if any mishap locks the back wheel or jams the engine a spill is almost bound to result, as for all practical purposes the transmission is "rigid," and cannot yield under the strain. I believe this applies to every existing motor cycle transmission with the sole exception of the belt. A "spring sprocket" becomes rigid when its spring is fully compressed. A friction held sprocket that is tight enough to take the drive up a steep hill will similarly lock up into rigidity if either the engine or the back wheel jams. Against this defect we must, of course, set the compensating advantage of superior weatherproof qualities, at least in the case of the gear drive. It is, however, interesting to read in a recent issue of an American journal that amongst other 1910 tendencies in the States "belt drive is ousting chain drive in most quarters, though many firms still make transmission optional. The V belt will be more popular than ever." American development is obviously profiting by English experience, and I have little doubt that as the Americans learn to make better belts we shall hear less and less of the chain drive in the States. Still, we must not forget that the most popular and best of all the American machines is still driven by chains.

Back-rests for Motor Cyclists.

Some of the younger generation of motor cyclists possibly do not know what the "*fin de siècle*" disease ("motor cyclist's back") is like. We older ones who have done our 300 and 400 miles in a day on the obsolete camel-backed 2¾ h.p. machines know only too well, and so we can understand why inventors continue to place back-rests on the market. If a rider's position is wrong or if he is out of training a run of two or three hundred miles sometimes induces an ache across the small of the back not at all unlike a mild attack of lumbago. Such effects are much rarer nowadays, in this age of low saddles and upswept handle-bars, but some riders are still subject to the pain in the back, shoulders, or neck after exceptionally long runs. When we come to the question of a cure I am strongly in favour of a very low saddle and very high handle-bars. I have ridden 300 miles absolutely untrained on a machine with a very low spring mounted saddle and extremely upswept steering bar grips, and felt no backache at all. If others demand a back-rest, I should advise inventors to make the disappearance of the rest automatic. It is all very well to say that the modern machine is so low that the rider need never dismount by jumping off, but may simply apply the brake and drop his feet on the ground. Occasional emergencies still render a leap out of the saddle essential for safety, and these are just the occasions when a rider may not have the presence of mind to quickly operate some button or lever to release an obstructive back-rest. But every hurried dismount begins with a removal of the rider's weight from the saddle; he either throws it on to the handle-bars, or the footrests, or a pedal. Personally, as an ex-gymnast, I throw it on to the handle-bars. Very well. If a back-rest were so designed that it fell back as soon as the rider's weight quits the saddle there would be no danger or awkwardness about it, and this would be a feature full of attraction to those riders who want back-rests.

Ease of Starting.

I am glad to see that the A.C.U. is awarding a premium for ease of starting in the Quarterly Trials, though five marks are none too many for so desirable a feature. I assert with some confidence that the frequent public spectacle of less capable riders struggling to get their machines started has done more to hamper the progress of the pastime than most things, and I should like to see the A.C.U. apply this principle to the Six Days Trials. If we take our stand in the courtyard of the official hotel on any morning of the Six Days Trials we shall see the riders, almost without exception, injecting petrol or paraffin, pedalling hard, winding away with handles, etc., running their engines on the stand for two or three minutes before entering the roadway and making their official start. Even then a percentage fail to get away cleanly and promptly. We can pardon a machine for being difficult to start on Brooklands, what with a high compression and an enormous gear ratio, and it is, perhaps, excusable in extremely cold weather; but a machine entered as a tourist mount in a road trial ought to start from cold at any rate without preliminary warming up. I think more attention should be paid to this matter of easy starting in the 1910 Six Days Trials.

MACHINES FOR THE COLONIES.

By "IXION."

SEVERAL years of motor cycling journalism have provided me with a very lengthy roll of colonial correspondents, and their comments on the progress of the sport and industry at home are always interesting, and often sulphurous. I am able to estimate from previous letters what many colonial riders will be thinking of our 1910 machines, and it may interest prospective emigrants to hear a few suggestions. I always think, too, that our traders should pay considerably more attention to colonial requirements than they do, and think no trouble and expense given to "nursing" the first customer or two in any colony ill-spent. Probably for many years to come travellers in our colonies will have colossal distances to cover, and roads will annually improve a little, while railway extension will be slow. In twenty-five years it is possible that the English trade in motor cycles might only be a bagatelle compared to the colonial exports; and the question of catering for the colonies is not complicated by a call for a radically diverse specification. A machine that will suit the colonial rough rider will also suit the all weather, go anywhere home tourist: it is probably only in the height of the frame that the home machine need differ from the colonial.

The First Essential.

As far as I can make out, the first essential in a colonial machine is that it must be "fall-proof." I have often insisted that this feature is overlooked in the home market. Practically every motor bicycle in the country suffers at least one tumble annually; either it skids, or it is dropped when being wheeled, or the excited owner fails to prop it securely after a dismount. In the colonies frequent riding spills must be added to the list of falls we are liable to at home. When a man has to motor along 18in. bush bridle paths, interspersed with tree stumps and water troughs; when he has to push his mount out of nullahs and drifts; when he has to negotiate tracks made of undressed logs laid athwart his direction of travel, with here and there a log missing or rotted into powder, it is evident that an occasional tumble, and that a heavy one is inevitable.

Few machines on our home market are proof against this sort of experience. On some a low magneto bracket is the vulnerable point; on others the crank case (fancy a split crank case ruining your lubrication 100 miles from anywhere!); on many others the foot brake (with down grades of 1 in 3 ahead of you!); on almost all the foot-rests or foot plates (steel rods, a blow on which may twist the frame or rip the crank case; plates attached by light strip steel ties, which crumple up and compel you to wave one leg in the air for forty miles; aluminium plates, which crack in half, and so on); on some few machines the crankshaft or the variable gear is the vulnerable feature.

For home riding a machine that is "fall-proof" is certainly desirable; for colonial riding across huge tracks of lonely country bestrewn with grave difficulties, it is absolutely essential. Therefore the magneto should be placed in the safest position on the machine. Two sets of foot-rests should be provided, one pair of which should be so designed as to protect vital parts of the mechanism, without being so rigidly attached that damage to them means damage to the frame or engine.

The next prime essential is a sound variable gear. For home riding a machine may be termed a "good hill-climber" if it can rush a short length of 1 in 6 grade on a good surface under favourable conditions. Extremely bad hills are uncommon in England, and when the weather is bad we can usually make a detour. In some of our colonies grades of 1 in 3 are by no means uncommon when water courses have to be crossed, and, if short, they have to be negotiated from a standing start, over the worst of surfaces, and sometimes under a broiling sun. On plain main road hills grades of 1 in 5 and 1 in 6 are by no means rarities, and are combined with atrocious surfaces—loose sand, rough stones, and log roads, designed to avoid washouts in torrential rains. It may not be necessary that the machine should carry its rider up such phenomenal ascents; but I think it is necessary that the machine should be able to ascend a few yards of this combination of surface and gradient with the rider walking alongside; and few, if any, machines could accomplish even this without a change speed gear of some sort.

Districts where Repair Shops are Unknown.

Reliability of the highest order goes without saying in districts where repair shops are almost unknown, where spares have to be procured from thousands of miles away after delays of weeks, and where trains are infrequent and inaccessible. I think the next important special requirement of the colonial motor cyclist is better springing. It is by no means difficult to steer a motor bicycle over rough surfaces or along a narrow track. Eight years ago the road over the Grampians was in patches as bad a road as any living rider could keep in the saddle over; but, owing to its width, it was by no means impossible to cross it without a dismount. In the colonies riders occasionally strike several miles of road worse than the Grampian road has ever been, and only a foot or two in width, edged in maybe by trees or prickly plants. On such a road the standard English machine would bounce and buck like a frightened kangaroo, and the strongest combination of pluck and steel wrists would scarcely be able to hold it on the road. Imperfect spring forks and rigid saddle mountings can be of no service here, and possibly a completely sprung frame is an essential.

A NEW TRICAR LAMP.

AN acetylene lamp specially made for use on tricars has been introduced by the makers of the F.R.S. lamps and generators, Messrs. S. Hall and Sons, Ltd., 18-20, Swinton Row, Edinburgh. The body of this lamp is made of heavy gauge brass, it is 6in. in diameter over all, and has a Mangin lens of the finest quality, and, it is said, will illuminate the road for a distance of about 1,000 feet. Its weight is 6 lbs. The side sockets are brazed on from the under side of the body of the lamp as well as being riveted, and the catch for the door is of the invisible type as fitted to the motor bicycle lamp. The burner is adjustable as to height, angularity, and focus.

A

A REJUVENATED TRICAR.

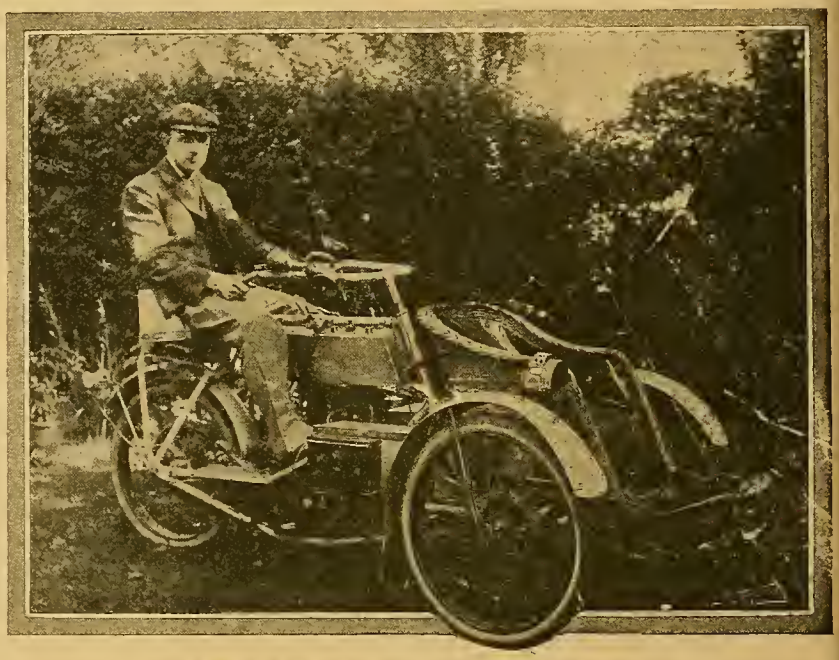
AS will be gathered from the annexed illustration, the subject of this article is a tricar which was first seen on the road in August, 1904. It is equipped with a 3½ h.p. (85 × 85 mm.) water-cooled M.M.C. engine, which by means of a chain drives a Bozier two-speed epicyclic gear fitted on a counter-shaft behind the engine, a second chain taking the drive from the gear box to the back wheel. The radiator is slung underneath the front axle, with the water tank behind it, a centrifugal pump being employed to assist in circulating the water. The brakes are powerful band brakes of large diameter, and the whole machine is very substantial. The ignition is by trembler coil and wipe contact.

Since the machine came into my hands, I have renewed the bushes in the engine bearings, and with the cylinder rebored and a new piston, timing wheels rekeyed, etc., the engine is in thorough order and running very well indeed. The tyres have been renewed, and a large tool box has been placed on the left side of the footboards, and a box containing accumulators and coil on the right.

Not the least improvements are the bucket seat in place of a saddle, and the long handle-bars. A steel frame has been fixed over the back wheel, and the seat is supported on it by four coil springs working on guide rods. The back of the seat is made of sheet tin built on to a wooden frame, the whole finished off with brass bands, and upholstered in American cloth. The seat gives a low position, and, with the springing, is very comfortable after a saddle. I may mention that anyone who owns a similar tricar could make the seat or have it made, and it is also suitable for a motor bicycle if the latter were provided with a two-speed gear and clutch. The whole is enamelled the colour of the machine, which is now French grey.

To lighten the machine, which was originally too heavy for the power of the engine, a wicker forecarriage has been substituted for a very heavy coach-built one.

On the road the machine has proved very reliable, and I have had some very good runs on it. As regards climbing, I have been over the mountain road from Festiniog to Bala. (I think that if the A.C.U. Six Days' Trials competitors had taken this road they would not have accomplished it too easily, and my passenger, a rider of a Triumph, agrees with me in this.) I have also been over the road from Denbigh to Pentre Voelas (highest point 1,550 feet above sea level). It is true I had to drop my passenger in one or two places, and also dismount myself in one place, but these were short stretches only, and I think the performance good for a 3½ h.p. engine, which did not overheat or show any sign of it on either of these excursions. My usual touring load is 22 stones, plus a portmanteau and some tools, the gear ratios being 7 to 1 and about 12½ to 1. The top gear is rather low, but with a fast running engine I find it quite high enough for my purpose.



A rejuvenated diamond frame tricar, first seen on the road six years ago.

With the above load the engine will run up to very high speeds on a favourable road, and there is no vibration from it whatever at its highest number of revolutions per minute. "All out," the pace must be very nearly thirty miles per hour, but twenty miles an hour is my usual touring speed. R. H. C.

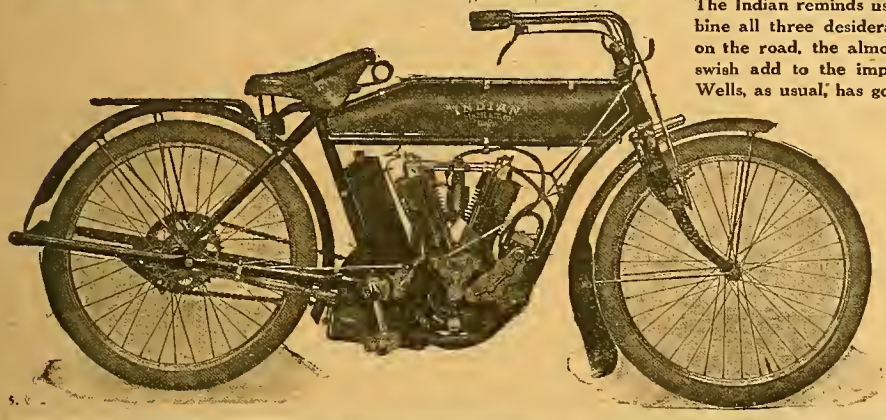
MIXING THE MIXTURE.

SOME expert riders consider that one great defect of the average short inlet pipe and standard carburetter is that the petrol and air which form the explosive mixture do not get thoroughly mixed. If we could analyse the gas fed into the ordinary engine, we should probably find it is like badly made porridge—there are, as it were, lumps of crude petrol vapour floating in a thin stratum of neat air. One or two inventors have been at work for years on miniature fans, which are designed to be mounted horizontally over the jet, and to be revolved at a great rate by the engine suction. It sounds a simple matter to design such a fan, but if it is made lightly enough to work fast and well, it either soon wears out, or gets sucked up into the valve box by the fierce rush engendered by the piston at high speeds. Consequently most carburetter makers are content to fit a spraying cone, with milled surfaces, or else some other form of obstruction to the flow of the gases, which helps to mix up the petrol and air vapour more homogeneously. Here is a very simple makeshift, which I have found of distinct benefit. It consists merely of slipping into the inlet pipe a long spiral spring, the coils of which act as baffle plates to the rush of vapour, and, as shown by actual road results in timed sprint events, serve to stir up the vapour thoroughly. MELANGE.

THE SILENT

"Indian Motocycle" Hendee Manufacturing Co.

INDIAN



"Some Good Points in Design."

By B. H. DAVIES.

"The Indian is abnormally powerful (I mean in point of durability just now) in proportion to its weight. . . . Chain drive and low weight are already all to the good. . . . . Then the compound leverage of the valve gear is a good point. . . . . It does its work with an irreducible minimum of friction, and yet the timing can be correct to a hair. . . . . The moving parts of the engine are also exceptionally light—the most casual observer must note the compact neatness and ethereal proportions of the power unit, yet its prolonged speed in long distance records shows that the material is right. . . . . English makers abandoned 28in. wheels a few years ago, sacrificing some small amount of comfort and tyre longevity for a low saddle position. The Indian reminds us that it is possible to combine all three desiderata. . . . Seen and heard on the road, the almost silent exhaust and chain swish add to the impression of graceful motion. Wells, as usual, has got a good thing."

The Motor Cycle, 13/12/09.

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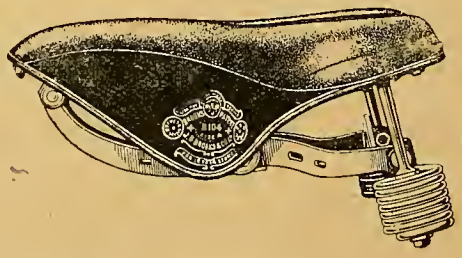
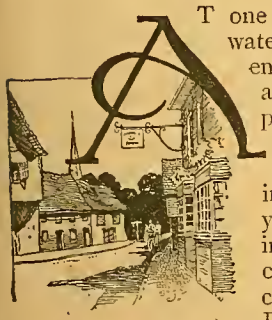


BROOKS B104 Anti-Vibratory Motor Cycle Saddle

WATER COOLING ON MOTOR BICYCLE ENGINES.

By "ROTATOR."



AT one time I scorned the idea of water cooling on motor bicycle engines, regarding the cooling apparatus as unnecessary complication, but, although I have ridden a score of different makes of motor cycles during the last seven or eight years, I am gradually inclining to the opinion that a water-cooled engine is the most efficient and satisfactory type. Realising the many drawbacks and difficulties in the way of water cooling a motor bicycle engine, I have seldom dared to venture the above opinion, so I was agreeably surprised to read in last week's issue of *The Motor Cycle* the article, "Water Cooling on Motor Bicycle Engines," and am interested to know that "Ailette" shares the same opinion as myself. I do not say that water cooling is bound to be adopted, or that it will be adopted in the near future, but unless some improvements are discovered in connection with air-cooled engines I feel convinced that the use of water jackets on motor bicycle engines will increase. Maybe a water-cooled cylinder head will be found sufficient. I have proved to my own satisfaction, and I think it is generally admitted, that a water-cooled engine retains its power more constantly than an air-cooled engine of the same size and design.

Obstacles in the Way of Water Cooling.

Recent converts may wonder why anyone can agitate for a water-cooled engine when air-cooled engines are so satisfactory. Unsightly radiators and water pipe connections, increased weight, and reduced petrol and oil capacity do not appeal to them. Of course, these are big obstacles to the use of water cooling, but, admitted that an air-cooled engine is extremely satisfactory, seasoned riders must agree that it has many shortcomings, and its chief defect, to my mind, is in the matter of wear. At one time it was said (and I believed it explicitly) that this abnormal wear of motor cycle engines was due to the fact that the workmanship and materials were not so good as in the case of cars. Of late years I have proved this statement to be entirely incorrect, for our best motor bicycle engines are every bit as carefully made of the best materials as the best car engine. Consequently we are left with the only deduction that this abnormal wear of motor cycle cylinders, pistons and piston rings, valves, etc., is due to an inherent defect of air cooling—that is, the great heat generated in a motor cycle engine. Fan cooling does not seem to have received the amount of attention and consideration it deserves, and there seems to be room for improvement in the casting of the radiating fins on seventy-five per cent. of present day engines. The combustion head is always the hottest part, but only on one or two engines are there an increased number of fins to radiate the excessive heat. I consider that large vertical fins with a clear passage for air currents to be absolutely necessary. Probably our makers have got a lot to learn yet in the selection of suitable metals for the great heat attained by air-cooled engines, and the excessive wear may shortly be counteracted. But there are other points in which an air-cooled engine falls short of the water-cooled type.

The Formation of Carbon.

Motor bicycle engines accumulate so much carbon deposit on the pistons and cylinder heads in less than a thousand miles that knocking manifests itself, and yet the best car engines are frequently untouched for four or five thousand miles. This constant removal of the cylinder is really a nuisance with motor cycle engines; it is not due to common oil, for the same thing happens with the very best oils, but is due to some extent to burning of the thick oil, high compression, and the fact that motor bicycle carburetters are placed in a much more exposed position than those on cars, resulting in road dust being sucked into the engine. But the trouble, again, seems to be chiefly due to the great heat motor cycle engines attain and wear of rings allowing the oil to leak past. The high temperature of motor cycle engines also accounts to a very large extent for the frequent breakage of exhaust valves and pitting of valve seatings, causing loss of compression. How often do valves of water-cooled engines break? Probably not one quarter so often as valves of air-cooled engines. Engine stiffness and sluggish starting are common complaints with some present day motor bicycle engines, but water-cooled engines hardly ever gum up, and in the majority of cases are ready to start at the first pull over with the handle even when cold. No motor bicycle seems to be up to date without a paraffin injection can to facilitate starting.

Of course, water cooling has its own particular disadvantages. There is the trouble of keeping the water in the tank at the right level (a hard working engine would soon cause the water in a thermo-syphon system to evaporate unless the water capacity was liberally arranged), the possibility of a cracked cylinder in frosty weather, leaky radiators, increased weight, etc. But the advent of water-cooled cylinders or combustion heads on motor bicycles would, in my opinion, sound the death knell of our four main troubles, viz., (1) overheating, (2) knocking, (3) excessive carbon deposits, and (4) valve breakages.

Improvement Still Needed.

My remarks, based on actual experience with both cars and motor cycles, prove that there is still room for improvement in design. Maybe the two-stroke engine will solve many of the difficulties, and I also think that some better method of releasing the exhaust gases of the four-stroke type could be found which would tend to keep the engine at a much lower temperature. Auxiliary exhaust release holes have been used for years with great success on track racing machines. The same idea on touring engines, but with a valve to open only on the exhaust stroke to keep the oil from escaping, is worth trying. I believe I am right in saying that a Coventry firm is building an engine on these lines for experimental purposes.

For fear my deductions may be misunderstood, I may add that I own and ride air-cooled machines, and I hope to continue to do so. I pen these few lines in the hope that designers may cudgel their fertile brains for the best means of artificial cooling.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

At Least 3½ h.p. for Sidecar Work.

I am about to invest in a 3 or 3½ h.p. single-cylinder N.S.U. Do you think it would be powerful enough for sidecar work, weight just over 20 stones all told? I should be quite satisfied with 12 to 15 m.p.h. and to help with the pedals uphill.—J. S. M

A 3½ h.p. with two-speed gear would be advisable for sidecar work. If you relied on one gear only you would frequently be called upon to assist with the pedals, and even then you could not climb steep hills.

Black Enamel for All Weathers.

I have ordered a new Triumph motor bicycle, but am very undecided whether to have it enamelled black all over including hubs, handlebars, wheels, spokes, etc., instead of plating. Do you think the enamel would wear as well as the nickel?—H.W.H.

It is entirely a matter for your personal choice. You would find enamel, if properly stoved, to last as long as plating. All-black machines are gaining favour on account of the difficulty of keeping the numerous plated parts of a motor bicycle bright.

Carburetter Flooding.

Can you tell me if there is anything unusual in the working of the carburetter on my four-cylinder F.N.? When the engine is running everything seems quite normal, but after stopping the engine the petrol overflows from the jet chamber at the junction of the auxiliary air-pipe, and continues for about fifteen seconds. I have had it overhauled by the makers, but the flooding continues as before. The needle valve fits accurately, and completely stops the flooding when the float has sunk to a certain point. Does this increase petrol consumption, and will it have any effect on the running of the engine?—S. K.

If the carburetter only floods for about fifteen seconds we should recommend you to leave matters as they are. A very minute quantity of petrol is lost, and if you touch the carburetter you may upset its adjustment. After stopping, take the needle between the first finger and thumb and twist it round, pressing it down at the same time. This will probably stop the flooding. If not, carefully read the article "Adjusting and Testing Carburetters" in this issue.

Swilling the Crank Case with Paraffin.

As I am taking the pedals off my machine, is it likely to harm the valve seatings or engine if, when I want to clean cylinder and crank case, I flood the latter with paraffin and run it on its own power a few hundred yards, repeating the process two or three times? Of course I should empty the crank case and refill each time.—R. W.

No, we should say that it is not advisable to run the engine on its own power when flooded with paraffin, especially if the bearings are at all a good fit, as seizure might possibly occur. If, however, you can start the engine by jacking up and pulling over the back wheel, you may run it for about five seconds, which is quite enough to cleanse the engine thoroughly.

A Two-speed Machine for Sidecar.

Please give me your unbiased opinion as to the suitability of the 1910 Phelon and Moore to take a sidecar. Myself and two friends have ordered them, two to be with sidecars. In choosing a machine I have had to have regard to the fact that I shall ride it a lot without the sidecar, and I therefore want something easily controllable in traffic and grease, as I am rather nervous of sideslip. My weight in riding clothes is fifteen stones. (1.) Will the Phelon and Moore take me alone up any hill such as Porlock or Lynton hills in Devonshire? (2.) Would it take a sidecarriage empty up these two hills with myself driving? (3.) Would it take an eight stone passenger up Rectory Hill, Amersham? (4.) Would it take me alone up Rectory Hill on top gear, and a sidecar with passenger up Barnet Hill on top gear? I may say I have ordered the standard sidecar gears of 5 and 9 to 1.—S.L.E.

We have had no experience with the 1910 P. and M., but we should say that (1) The machine, if in good order, would take you up the hills mentioned in your letter; of course, on the low gear. (2.) It would probably need a lower gear than standard with a sidecarriage, as your weight is above the ordinary. (3.) It should take a passenger up Rectory Hill, Amersham, easily. (4.) It certainly ought to take you up alone on top gear. If pulling really well, it might just take two up Barnet Hill on top gear. This hill is steeper than it looks near the top.

Cause of Engine Knocking.

(1.) Where can I get spare parts for 3 h.p. Clyde (Simms engine low tension), also (2) what is the cause of excessive knocking when encountering gradients? I use an Amac carburetter. Engine quite clean.—H.P.S.

(1.) You can get spare parts from Messrs. G. H. Wait and Co., Clyde Motor Works, Leicester, or perhaps from the Simms Magneto Co., Ltd., Welbeck Works, Kimberley Road, Willesden Lane, Kilburn, N.W. (2.) We suggest the following likely causes of the knocking: (1.) Possibly the engine may be over-geared. (2.) Some small part may be loose from wear. (3.) Through pre-ignition owing to the engine not having been cleaned internally for some time. (4.) Through pre-ignition owing to some derangement of the magneto timing mechanism.

A Difficulty in Starting.

I have just fitted a new magneto to my machine, but I cannot run it fast enough to get a proper spark to fire. The timing or setting is—the piston at the top of compression stroke, the advance lever retarded, and the points in the act of breaking. The engine and carburetter are all right, as they worked well with the accumulator. I can get a splendid and regular spark by turning the sprocket wheel smartly, when the driving chain is removed. I have no pedals or I might manage to rotate the magneto fast enough if on a stand. Do you think the magnets need remagnetising so as to give a good spark at slow speed?—J.B.

The fact that you can get a good spark when turning the armature with the fingers seems to show that the magneto is all right, and a spark is almost bound to occur when you wheel the machine along. Consequently, we should say that the refusal of the engine to fire is due to an imperfect mixture. It would be well to study previous hints in these columns on carburetter adjustment, and especially test whether too much air is entering *viâ* the main air intake. In cold weather the main air supply should be reduced to effect easy starting. The timing seems to be about right. If you still experience difficulty, consult the vendors of your magneto. The magnets should not need to be remagnetised if the magneto is a new one.

Timing a Twin.

Kindly advise me where the trouble lays in the timing of my 5 h.p. twin, Simms-Bosch magneto? I have timed the cylinders to fire just at the turn of firing stroke. The engine fires perfectly in this position with spark fully advanced, but when retarded over one notch it ceases to fire. I have taken plugs out, and find that they spark from advance to the retard, have also taken engine down and thoroughly overhauled it, regrinding valves, etc., and everything appears to be in perfect working order.—L.S.

As far as we can make out, the trouble with the timing is that the magneto is too much retarded. This is a sure sign if it ceases to fire when the lever is retarded. Try advancing the timing a very little at a time, and you will probably find that you will then get a full range of advance and retard.

Operating Pedals in the Dark.

I ride a 1909 Humber with footboards and foot levers. I find when riding in the dark that it is difficult, nay, impossible, to see the foot levers as one would desire. A small oil lamp fixed just behind the footboards (with a red rear glass) would throw a light on the levers of the machine generally. I should like to know if anyone has tried this, and his experience with it; also where such a lamp and fittings could be obtained. An ordinary cycle lamp would do, but that possesses no rear light.—N. W. D.

You could well rig up a lamp which would easily suit your purpose. It would be best to have an electric one. A small tricar or small car tail lamp would do. You could probably easily arrange to carry a small accumulator strapped to some convenient portion of the frame. Such a lamp or accumulator could be obtained from almost anyone dealing in accessories.

Drip Feed Lubricators.

I should be much obliged if you would tell me if a drip feed lubricator would be suitable to use with air-cooled oil on my 1909 Triumph. I have been told that during the cold weather the oil would not drip at all.—R. E. W.

If you refer to a drip feed or vacuum feed lubricator similar to the J.A.P or Rex, thick air-cooled oil will feed to the engine properly, but as oil is much thicker in winter than in summer, you would require to adjust the needle valve so that the oil flowed more readily to the crankcase. The two lubricators mentioned depend upon the vacuum created in the crankcase for feeding. That on the F.N. lightweight is placed below the level of the oil tank so that the oil merely runs into the crankcase *viâ* the lubricator, and the rate of feed is adjustable by a tap over the glass gauge. If you experience difficulty in getting the oil to flow properly, bear in mind that it is not necessary to use thick oil in winter; in fact, the makers of your engine recommend water-cooled oil for winter use.

Damage caused by Broken Rings.

If a piston ring breaks in the cylinder will it cause any damage to the cylinder if the engine is kept running? How can I tell when a ring is broken without removing the cylinder?—T. H. (Birkenhead).

A broken piston ring does not usually cause any damage to the cylinder unless a very small part breaks off, jams, and scores the cylinder. Loss of compression is the usual sign that a ring is broken, but it is not unusual when dismantling the engine to find a broken ring even when the engine has been previously running well. It is practically impossible to tell when a ring is broken without removing the cylinder.

The Effect of fitting a New Piston.

I recently had fitted to a 2¾ h.p. Humber engine (1904 pattern) a domed top piston with two rings—one at top and one at bottom. The engine does not run at all well, and I cannot get any speed out of it, and I am of opinion that this is caused by imperfect lubrication. Will boring holes in the sides of the piston improve matters, as I think the top ring does not get enough oil? I give the engine plenty of oil (Price's Motorine A). The domed top has increased the compression (it was formerly a low-compression engine). Do you think the higher compression advisable, or would a metal washer between cylinder and crank case be better? I find my machine will not climb hills as well as it ought to, considering I have a P. and M. two-speed gear 5¾ and 9½ to 1. This district is extremely hilly, and I fancy, with the engine in good order and these gears, I ought to be able to climb anything. The bearings are all right, the engine having recently been re-bushed; flywheels revolve freely, and do not rub against the crank case. The new piston is heavier than the old one, and I fancy the balance of the engine has been disturbed thereby. If the boring of holes as suggested is feasible, it would, I think, improve lubrication and balance of engine.—F. A. C.

Certainly you may try holes in the piston. This would reduce weight, improve lubrication, and possibly restore correct balance, but you would destroy the effect of the bottom ring, *i.e.*, you would be relying on the top ring only for compression. Perhaps the extra weight of the piston accounts for the sluggishness. Failing this, we should recommend you to fit a standard type of piston. Probably this will be the best way out of the difficulty, as the increased compression does not appear to be satisfactory with your machine. However, if you do not care to do this, try the metal washer and reduce the compression by this means. With a two-speed gear you certainly ought to be able to climb most hills, especially if the engine is properly adjusted and tuned up. An important point with old engines is to note that the exhaust valve lifts the full distance. Worn cams and weak valve springs account for loss of power.

Interchangeability of Tyres. Detachable Combustion Heads.

(1.) Please say if 26in. by 2½in. tyres will do for a rim which is made for 26in. by 2¼in. tyres? (2.) I want a two-speed twin for sidecar work, and notice that the Indian engine has detachable combustion heads. Are these better than the cylinder and head cast in one piece?—A.J.C., Gold Coast.

(1.) We know of no 2½in. cover which will fit a 2¼in. rim. (2.) Detachable combustion heads are a great advantage provided the joint between the head and cylinder can be made absolutely gastight. The chief advantages are that it is easy to bore the cylinder perfectly true, and to remove the combustion heads so that the carbon deposit may be readily removed.

Irregular Running.

After returning from a run and resting my machine for a few hours I tried to start it again on the stand (N.S.U. 3½ h.p., m.o.i.v., two-speed, 1906). After a good deal of pedalling, I got the engine to start, but it stopped in about two minutes, and after several injections and vigorous pedalling it would give a few explosions, and then stop. After repeating this several times, I began to test the different parts, and found the spark all right, the carburetter seemed all right, but the tappet on the inlet valve seemed to have a lot of play. I took the parts down, but all appeared in order. Can you please give me any advice? I have ridden a motor cycle six months, so am not very much experienced.—H.L.E.

You omit to mention the most important part, viz., the type of ignition. Your trouble sounds very much like a run down accumulator or a defect in the spark, as, if the machine came to a standstill with the engine running all right in the first instance nothing could derange itself while the machine was standing. Examine all the wiring carefully, also the switch handle and sparking plug points. If these prove to be in order, we should be inclined to think that the petrol pipe is choked up. Are you quite sure that the jet and petrol pipe are free? You can possibly tell if the irregular running is due to the petrol supply being impeded by holding up the needle valve when the engine is running. This causes a great deal more petrol to reach the jet. Finally, make sure that the inlet valve is opening and closing properly.

The Express Rubber Co., 19, Great Eastern Street, E.C., have lately placed on the market an excellent motor cycle suit, which, though it is well made and guaranteed for two years, is sold at a very moderate price. After examining this suit, which consists of a jacket and leg overalls, we have come to the conclusion that it is wonderfully good value. A capital waterproof coat and numerous other mackintosh articles of apparel are also sold, while, if desired, goods may be made to order. During this month the Express Rubber Co. are holding a sale, during which prices are substantially reduced.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

The Use of the Carrier.

[4487.]—May I have the privilege of drawing attention, through the columns of your paper, to the danger of carrying a passenger on the carrier of some motor cycles. The makers of my machine informed me (at the Stanley Show) that the one they fitted was made of sufficient strength for this purpose, but I should like to warn my "colleagues of the wheel" that this has not proved to be the case with the machine supplied to me. Only this week a friend of mine was precipitated in the roadway owing to the two small rivets pulling out of the struts connecting the carrier with the back stays. Since the accident he has been compelled to remain at home owing to his face not being presentable, notwithstanding the fact that I was only driving at 12-14 m.p.h., and he only weighs just over nine stones. I am sure you will agree with me that this is a weak point to which attention should be drawn.

W. J. T. CREWE.

A Friendly Match.

[4488.]—I am quite willing to meet Mr. van Diggelen at the Brooklands Track if he particularly wishes the contest to be decided there. I should, however, be glad if he would agree to the event taking place at the Stadium, as the latter is quite safe for speeds up to sixty miles an hour, and is very accessible and sporting from the point of view of probable spectators. On Whit-Monday last the Western District M.C. (London), of which I am hon. secretary, held a meeting at the Stadium, and if, as I hope, a similar fixture is arranged this year, it would be very convenient and interesting if the challenge could be run off in conjunction. I agree to the distance of fifty miles, if so required by Mr. van Diggelen, though it seems to me unnecessarily long.

Mr. Geo. Brough, in letter 4476, is, I notice, also taking up the challenge. Perhaps, if that gentleman will communicate either with Mr. van Diggelen or with me, care of the Editor, the three of us could come to some definite arrangement.

F. H. MULLETT.

Improvements in Detail.

[4489.]—Regarding Mr. Lester's remarks under above heading in the issue of December 20th, I should like to say that it is an exaggeration to write that the valves of a Triumph often want grinding. I rode a 1909 model over 3,000 miles last year, and I am a heavyweight and rode up various test hills and never touched either valve. I can now stand on the pedal against compression for five minutes (perhaps more). After saying this, and also mentioning I have just ordered another machine of the same make, I may perhaps be permitted to offer a few criticisms on the new model.

(1.) The carrier is so shaped that the saddle cannot be put further back, therefore it has to be bent to allow such adjustment.

(2.) The footrests are rather too high, *i.e.*, near the seat. Both 1 and 2 only trouble a tall rider. 1 is easily obviated, the other is not, but does not much signify if the seat is further back.

(3.) The new toolbags are in an awkward position, but the company will supply the old style, so no "grumble" is fair on this score.

(4.) The inverted levers for exhaust and brake would be better replaced with ordinary pull-up ones.

These are all small points, and as an amateur rider I should like to add my humble praise to what I consider a practically perfect mount.

FRED STUART.

The A.C.U. and Provincial Clubs.

[4490.]—I notice Mr. Pickering is at it again, and I would like to ask him how many of his merry men have supported the A.C.U. trials?

I remember a scheme connected with military work also put forward by Mr. Pickering; how much have he and his merry men done towards *this* movement?

I remember he and his fellow committeemen passing a rule not to admit the trade to their club, the Worcestershire M.C.C. I should like to know how this has worked down his way. No doubt this accounts for the great gap between the 3,000 and 75,000.

I also see he is the hon. secretary of the A.C.U. Midland Centre, and I should like to know how much work he has done in his particular district.

I am asking these questions, because Mr. Pickering seems delighted in keeping the ball rolling at headquarters, and it all seems to end in smoke.

HAD SOME.

Road Dangers at Night.

[4491.]—Letter 4466 of the 20th ult., signed A. P. Board, appears to me to call for a little comment. Is it not impossible to expect a farmer to keep his herds at all times from straying one inch beyond the crown of the road?

I confess I do not understand how Mr. Board "inclined down hill," but I take it that on turning a corner he met some bullocks and charged them. Had the collision occurred a little later possibly the three ladies would have suffered instead of the bullocks. In a case of this description how would a lantern prevent a collision? The fault apparently lay with Mr. Board, in going too fast, either for his nerves or else for his stopping powers.

It also seems a trifle mean to impose on the good nature of people possessing more grit "by sitting down and awaiting a good Samaritan," although unhurt.

Given a suitable mount, one should hold his own in pace and still use discretion whenever there is not a clear view ahead. Some day, we may take to farming ourselves, and only then will some of us see such matters from both sides.

FRANK HALFORD.

Increase of Speed on Partially Raising the Exhaust Valve.

[4492.]—Does it not seem probable that the instantaneously created and enormous pressure caused by the explosion of the petrol vapour is not entirely relieved by the temporary opening of the exhaust valve? If this be the case when, in the ordinary course of events in the petrol engine, the exhaust valve closes, probably the pressure is not completely relieved. Therefore the next stroke (*i.e.*, the compression stroke) starts with some compression already existing. Thus when the exhaust valve is kept slightly raised—that is to say, when a continual escape of pressure is allowed—the result is an increase of power, temporarily at any rate. The explanation would appear to be that, although a certain amount of power is lost through a periodical partial loss of pressure, the total gain is greater than the loss when the forward pressure is not completely relieved. In a generalisation of this kind details are impossible. The solution would appear to be an increase in the size of the exhaust in proportion to the inlet valve, or a lengthening of the period of exhaust escape. The former seems to be the practical solution of the problem. Keeping the exhaust valve lifted is a practice which must lead to so much labour and damage to the engine in the way of grinding-in the valve that it cannot be recommended from any point of view except of those who make engines for people with unlimited incomes.

CHARLES WALKER, M.Sc.

American Records.

[4493.]—In reply to letter No. 4454, "American Records," it is quite good to note that the writer, Mr. S. Lacy Crolius, is so well pleased with *The Motor Cycle*.

With regard to records, however, and more particularly those of American origin, I beg to state that the Britisher has had some, thank you.

Has Mr. S. Lacy Crolius ever heard of a certain Dr. Cook who climbed Mount McKinley? (I don't think); and who also reached the North Pole? (Perhaps.) Those are American records, I presume.

I have a friend who owns a small four year old 6½ h.p. four-seater which was recently timed through a police trap of a quarter of a mile at the record speed of 42 m.p.h. There is a record for you, and timed by expert police who cannot err, of course, with 8s. 11d. stop watches guaranteed absolutely correct, of course. How is that for a record, American or otherwise?

We Britishers will be as glad as Mr. S. Lacy Crolius to see that big 7 h.p. racing motor cycle on our tracks and competing against our machines, and we Britishers promise not to swank until the race is run and the numbers are up.

COLONIAL.

Sidecars v. Tricars.

[4494.]—I have read the letter signed Henry Grafton in *The Motor Cycle* of December 27th, "Sidecars *v.* Tricars," and cannot say I can uphold the arguments in favour of the sidecar. Now I have driven a tricar for two years, and the only drawback I find is its unsociableness, which I do not count much when the benefits are taken into consideration. It is not very much better on a sidecar with pillbox silencers. The sidecar has many drawbacks: (1) Belt troubles (of course, if you have chain transmission with a 6 h.p. twin engine this takes you over seventy guineas); (2) driving round sharp corners dangerous; (3) transmission not evenly distributed; (4) uncomfortable riding position and steering, compared with nice comfortable sprung bucket seat and wheel steering; (5) bad for riding in traffic without a clutch, which, if fitted, would mean an increased price; (6) two wheels between forks instead of only one, causing more trouble in mending punctures; (7) tyre on driving wheel much too light for the work, causing endless trouble; (8) no saving in petrol consumption; (9) smallness of petrol tank for size of engine, generally only holding one and a quarter gallons instead of at least two gallons; (10) greater liability of a broken frame owing to extra driving strain.

H. A. TOMBLIN.

Lightweights v. Heavyweights.

[4495.]—Mr. B. G. Durkin's views on this subject make amusing but rather pathetic reading. One could have hoped that a six years' devotee to the hobby of motor cycling, as he professes himself to be, would have grown a little less narrow-minded. His little bit of bombast, too, about his "young, strong, nerved, and active" self, "revelling" in the speed and power of his twin, is typical of the sort of person one can imagine opening his throttle when he passes a broken-down motor cycle, to show how *he* can go. The spectacle of this gentleman sprinting about among the fat, middle-aged Benedicts who appear to form one section of his lightweight riding acquaintances must be extremely edifying, only, indeed, to be surpassed when he takes a day out with his other friends, the "weak, nerve-shattered, and aged" crowd that appears to "tremble" at the mere thought of bestriding his heavyweight.

The only point in his letter with which one can agree is that in which he says, "Different types of machine are intended for and used by absolutely different men." The fact is that the whole question of "Lightweights *v.* Heavyweights" is being looked upon from a wrong standpoint. It should not be the one *versus* the other. Each is used for its own peculiar adaptability to its own particular job, not necessarily its own particular man. For long-distance riding and touring few will deny that the heavy single or twin is the more suitable, while for dodging about from one village to another, with frequent stops, it is utterly unfitted. The "nervy" Mr. Durkin says "upholds" the heavyweight. Let him accompany a doctor on his round for one day, let him stop it and start it from the cold twenty times in the morning, and wheel it through narrow gateways and passages, and in and out of its own shed as often, and he will find he has as much "upholding" to do as even he can manage. In fact, there would be more "upholding" than he bargained for. It would be all "upholding," and by the end of a week he would wish he had two other "young, strong, active" men, and a boy, to help him "uphold" it, and would sigh for a light or medium weight machine to replace his speed king.

I speak from experience, having graduated from the 3½ h.p. heavyweight, through the 5 h.p. extra heavyweight twin, and tricar, to the 2¾ h.p. medium weight. I am neither fat, forty, nor married. I cannot place myself under the heading of weak, nerve-shattered, or aged, and yet I confess that, as a doctor, I find none of the first three come anywhere near the 1910 Douglas I got at the Stanley a few weeks ago. It is early yet to talk about reliability, but it does not take long to find out its handiness. I have so far gone about three hundred miles in all weathers, and find it a distinct success. With the Editor's leave, I will in a few months' time describe my experiences with it, including expenditure and upkeep.

(DR.) H. S. GASKELL.

[4496.]—In answer to Mr. W. L. T. Rhys's letter [No. 4464] in the issue of December 27th, in which he replies to Mr. Morris's letter, if he wants to talk about six days trials we will have a word to say here. He mentions the competition up Birdlip Hill during these trials, so we will take Birdlip first. Out of forty-nine competitors sixteen dismounted and five pedalled (all these were machines of 3½ h.p. downwards), and one surmounted this hill so well (though it was pedal-assisted) as to have "excellent" put after it. This was the 1¼ h.p. Motosacoche, which we do not claim to climb precipices without pedal assistance.

Now let us take Dinas Mawddwy. Thirty-two riders dismounted, a rider of a 7 h.p. machine included; eight machines were pedalled, the Motosacoche amongst them, again being marked "excellent." These figures are taken from the issue of *The Motor Cycle* of July 21st, 1909, page 542, and we think speak for themselves. Nobody in his sane senses would ever state that a 1¼ h.p. machine could travel as fast as a 3½ h.p. machine or upwards, nor did Mr. Case Morris infer such in his letter, we are sure, but what we say is that a Motosacoche will climb hills of 1 in 10 unaided, and with pedal assistance will go up hills which much more powerful motor cycles don't always surmount, and where a lot of them won't, even with pedal assistance. I think this was proved in the above trials, and we do not think Mr. Rhys could dispute this assertion after carefully considering it.

The other correspondent in the same issue, Mr. B. G. Durkin, hardly requires an answer, as he does not like lightweights on account, perhaps, of his being so young, as he says in his letter of the same date. Probably when he gets older he will begin to realise that people who ride lightweights are not so silly as he thinks they are.

MOTOSACOCHE, LTD.,
O. L. DE LISSA.

[4497.]—May I ask for a little space in your correspondence columns to explain the part of Mr. Karslake's letter [No. 4455] which refers to weights of Douglas machines taking part in the M.C.C. Consumption Trial last September.

The two machines ridden by Messrs. W. W. Douglas and Eli Clark weighed respectively, as stated, 122 and 124 lbs., these figures representing the weight of the machine, plus a very complete touring kit, lamp, and generator, spare clothing, etc.

The other two machines, weighing 145 and 150 lbs., were ridden by Mr. G. L. Fletcher and myself respectively, and were weighted up, carrying 40 and 45 lbs. dead weight, in order to benefit by a better petrol allowance, and, incidentally, making our performance better on formula.

It is noteworthy that the weighted machines secured second and third prizes (Mr. Fletcher's covering 133 miles to the gallon), despite this added weight and the adverse climatic conditions, rain falling the whole of the time, and the roads being in a very heavy condition, circumstances which are not propitious to low petrol consumption.

We are indebted to Mr. Karslake for giving us the opportunity of drawing attention to the very fine performance of lightweight machines carrying riders weighing over 11 stones plus 3 to 3½ stones of dead weight, and yet be capable of the performances recorded.

As Mr. Karslake was one of the officials presiding at the

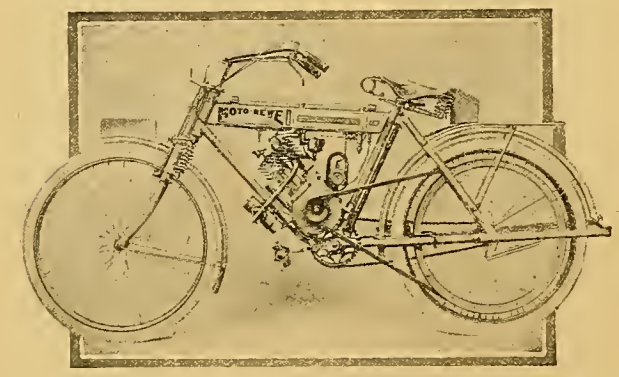
scales on the occasion of the M.C.C. trial, and it was patent to all present that the machines were carrying extra weight, it would tend to show that Mr. Karslake rushes into print without giving his subject very much consideration. A little reflection would have saved him making the very obvious error of assuming the weight of the Douglas to be 150 lbs.

For DOUGLAS BROS.,
J. V. ROBINSON, London Manager.

The Novel Piston Ring.

[4498.]—In reply to "S. T." [4457], December 27th, 1909, I am not aware that my invention has been in use for years, and "S.T." must have a greater knowledge than I have to make such a statement. A ring on similar lines was patented in 1903 (No. 20,258); if this is the one he refers to I quite agree with him that it would wear the cylinder unduly. The rings in above specification supported the piston; in fact, the rings carried the whole weight of the piston, which in my case would be entirely different. My patent agent, Mr. Samuel Hey, Keighley, made a search of over 1,500 specifications, and this specification (No. 20,258) was the only one touching upon my idea at all. Years ago how often was a cylinder lubricated? There were no pumps to feed the cylinder with oil as now. Any ring will wear the walls of a cylinder if it is not properly lubricated, but those that I have had running up to the present time are giving every satisfaction, and the wear so far as I can tell is no more than the ordinary ring.

I shall be pleased to hear from "S.T." on what engines he has seen my ring in use, as if he is basing his opinion of it from patent No. 20,258, and will study it and mine side by side, I think he will come to the conclusion that he has made a mistake. I thank "S.T." for his opinion and criticism, which I am very pleased to see, and hope next time he will sign his name in full. JOHN THOMAS.



1910 pattern single-cylinder Moto-Reve lightweight. The engine, which is rated at 1¾ h.p., measures 60 x 85 mm. The screened, yet accessible, positions of the carburetter and magneto will be noted. Transmission may be by round or V belt.

Belts on Lightweights.

[4499.]—I cannot refrain from making a few remarks on this subject, the recent correspondence has been so interesting and in some respects so irresistibly funny. I believe I have before stated that I am the owner of a 1907 Motosacoche.

"Engineer" [letter No. 4458] will, I think, find his trouble vanish to a great extent if he will get 4in. mudguards fitted, a hole being cut in the rear guard to allow the belt to travel through it. He will also find that 4in. mudguards keep the mud off more efficiently. But I heartily agree with him when he says there is not sufficient clearance, because the slack of the belt constantly hits the back tyre, as evidenced by the mark it leaves. He also says "belt unravelled at the ends." Ah, yes! so did mine in the old days. Let "Engineer" get 4in. mudguards, fit a 3½-4in. engine pulley, and apply a Watawata V belt, and he will be nearly happy!

In conclusion, Mr. de Lissa's assertion seems to have been expressed to more than one person at the Stanley Show. It is funny, but he told me about the "makers having brains." In fact, he gently hinted that others, like my bumble self, had no right to claim the possession of any contents within our cranium. FRANCIS J. GEOGHEGAN, M.D.

Two-speed Gears.

[4500.]—In reply to letter 4478 of January 3rd, we, as proprietors of the several patents of the gear in question (Griffin-Simplex), thank Mr. Jones for his kind intention, but would draw his attention particularly to the friction clutches in combination with the compound gearing, which are entirely new, and the most important feature of the gear.

A change-speed gear without an efficient friction clutch would not meet modern requirements, and we claim with our friction clutches as much slip as desired up to a positive lock, a unique method of control and change of speed combined in a very light and simple form.

Our latest design for 1910 as exhibited at the Stanley Show is a vast improvement on that illustrated on page 1018, Dec. 20th, 1909. Pinions are used instead of chains, there is no counter-shaft, the drive is entirely compensated, so no extra strain whatever is put on the engine-shaft, and the whole mechanism is enclosed in a small gearbox.

These additional features are fully covered in England and abroad, and are without doubt quite distinct from that illustrated on June 20th, 1904, which has not, however, come under our notice.

THE PATENT GEAR AND MOTOR CO.

Notification of Change of Ownership.

[4501.]—Acting on the advice given by you in your issue of December 27th, page 1030, regarding notification of change of ownership, I wrote the Middlesex County Council in reference to a Rex machine, which in 1908 the Service Co. took from me in part exchange for another machine. The Service Co. sold the Rex to another party after removing the numbers.

I was advised by those friends with whom I discussed the matter, subsequent to your publication of the advice, not to communicate with the authorities for fear of awakening a matter which otherwise might be allowed to lie dormant. However, I decided to risk it, and the enclosed is their reply. I believe there may be a large number of motor cyclists all over the country who are fearing to communicate with the authorities, and you would, I am sure, be doing a further good service by exhorting them to delay no longer. I have ascertained that the prosecutions are meant in real earnest. CHAS. S. LAKE.

[COPY.]

"Office of the Clerk of the County Council,
"Guildhall, Westminster, S.W.
"January 3rd, 1910.

"THE MOTOR CAR ACT, 1903. THE MOTOR CAR (REGISTRATION AND LICENSING) ORDER, 1903.

"Dear Sir,—I am in receipt of your letter of the 1st inst., as regards motor cycles H 3594 and H 4220.

"As regards H 3594, this registration is still standing in your name, no application having been received from you for the cancellation of the registration.

"I therefore enclose a form of application in order that you may apply for the cancellation of the registration.

"Yours respectfully,
"WALTER GEORGE AUSTIN,
"Clerk of the County Council.

"C. Lake, Esq.,
"5, Falkland Avenue,
"Church End, Finchley, N."

EXPERIENCES WANTED.

"S.K." (Warwick) would like readers' experiences with the Stewart speedometer on a motor cycle.

"Victor" (Knaresborough) would like readers' experiences with the Motosacoche, stating advantages and disadvantages.

"Rosamond" (Poulton-le-Fylde) would like readers' experiences with the 1¾ h.p. F.N., especially as regards hill-climbing, average speed, and behaviour of reducing gear.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected manuscript, drawings, and photographs will only be returned provided a stamped addressed envelope is enclosed for the purpose.

Morgan's Internal Combustion Turbine.

SOME FURTHER CRITICISMS.

A great deal of interest has been created by the description and drawings of the Internal Combustion Turbine published on December 13th. The general opinion seems to be that there are great difficulties to overcome before this type of engine could be made to run properly and develop power. The patentee is, however, to be complimented on the manner in which he has worked out the idea, and although his design—if he decides to make it—may not be successful, it has aroused a considerable amount of criticism and comment of the greatest interest to mechanically-minded motor cyclists; comment which will assist others who may be conducting experiments in the same direction. Below we publish two further criticisms on this most interesting problem of the internal combustion turbine.

INCANDESCENT writes:

"I have been interested by the explosion turbine described and illustrated in the issue of December 13th, and wish to present a criticism and some remarks in the same spirit in which you present the design.

"The real vital objection to the principle is that there is no free escape for the products of combustion after the first reaction of the issuing jet is spent. Now if the outer bucket ring rotated and the buckets were made of reflex form there would be a true reaction, as in the Delavelle and Parsons turbines, and additional rings of revolving buckets could be added to make use of the expansion of the explosion charge.

"It will be seen that the only power available in the present design is that obtained from the impact of the issuing streams of mixture against the vanes of the stationary bucket ring, and that pressure existing in the space L (see drawings December 13th) can have no effect, as the pressure of this issuing stream from the burners cannot exceed that set up by the compressing piston. It is therefore clear that the machine would not run.

"If combustion took place in the space K at a moment when full compression was reached a far more violent impact upon the stationary vanes would result, but without some means of retaining the mixture in the space K until the moment of explosion the mixture would simply escape through the orifice of the jet or burner.

Mechanical Objections.

"Mechanically there are objections quite as vital. First, to be efficient the rotating portion would have to revolve several thousand turns per minute, necessitating a worm reducing gear. This high speed of rotation would completely upset the action of all the valves, as if the springs were weak enough to allow of their opening at slow speeds and when starting, they would allow the valves to open when the centrifugal force reached a certain value equal to the strength of the springs. Then, considering the heat and speed, the friction against the packing ring U would quickly put it out of business, and lubrication would be practically useless. The eccentric looks very nice in position shown between rollers, but when its major axis was vertical there would be a lot of slackness, and it would strike the opposite roller a hammer blow. In my opinion the speed of the revolving portion would completely upset the flow of petrol, as the centrifugal force would vary with the speed. Lastly, what position is the high-tension commutator to occupy? It will surely be required to carry the current to the sparking plugs.

"Any motor cyclist who is sufficiently interested in the problem of the turbine can gain a very great deal of useful information by spending a few hours in the South Kensington Patent Model Museum, where sectional models of the various reaction engines and turbines can be seen, many of them in actual operation. There is an enormous mass of difficulties, both operative and mechanical, to be overcome before an internal combustion turbine can be made to run and develop power, not the least of which is caused by the rapid loss of heat caused by expansion and conduction in the case of an explosive mixture as compared with steam.

"Probably the first success will be scored by a combination of the two forces by causing the intense heat of the explosions to take up water, which will thus be converted instantly into superheated steam, which will in turn act upon the buckets of the turbine. When one considers the enormous effect of the slightest leak in valves or piston of the reciprocating engine, together with the fact that in the turbine the surfaces of the vessels which contain the expanding gas cannot be allowed to come in contact, the difficulty of the proposition may be grasped by even the layman."

Another Criticism.

V. Grunwell says:

"With regard to the article on Morgan's internal combustion turbine in the issue of December 13th, I should like to point out what appear to me vital faults. I wish to state at the outset that I am not influenced by any wish to discourage either the inventor or others who feel disposed to test the idea by actual experiment.

"I cannot see how motion is to be obtained from the flame at the burners. The space in front of the latter is roughly triangular, and if we imagine the petrol and compressed air issuing from the burner, it is clear that when the mixture is fired it will expand in all directions, instead of being concentrated against the vanes.

"Turbines are simply means of utilising the momentum of moving gases or liquids by opposing a surface at an angle to the direction of motion, and which the moving body by its law of following a straight line endeavours to push or twist out of its path. It follows, then, that the moving body must have its motion directed in a straight line before meeting the vanes, and, further, that every effort should be made to raise the velocity to the highest point in that given direction. In the case of a turbine of this character the combustion must therefore take place before the gases reach the nozzle, otherwise all control over the direction of motion is lost.

Morgan's Internal Combustion Turbine.—

"The foregoing is to my mind quite a sufficient reason why the turbine would not operate without taking into account the destruction of the parts near the burners, the difficulties of adequate cooling (which would be very much greater than the inventor seems to imagine), and the apparent absence of control of petrol supply (which would be necessitated by the action of centrifugal force).

"It is, I believe, admitted that the great obstacle to the production of a successful internal combustion turbine is that of keeping the heat of the parts within working limits. Theoretically, heat is simply so much energy, and any dissipation of it is waste of power. The ordinary petrol or gas engine is by no means ideal in this respect, owing to the loss by radiation and by exhaust, but a compromise has had to be effected to get a practical machine. The steam engine approaches nearer to the ideal, as no radiation is necessary (the reverse is the case), the temperature of the steam not being so high as to exercise a destructive effect on the materials of which the parts of the engine are constructed.

"In case I should be accused of destructive criticism I will shortly forward the outline of an idea for meeting the various difficulties referred to above, which perhaps you may be disposed to insert in your valuable paper."

A Reply from the Patentee.

Mr. R. E. Morgan writes:

"I have read with great interest 'Engineer's' able criticism of my internal-combustion turbine, and would like to answer some of his objections. Perfect balance of the rotor may be obtained by having twin cylinders, side by side, for pumping, a cam for each, on the same shaft, the two cams being opposed. (I have shown this in the drawing of the same turbine designed for cars.) The two holes of the drum are cast from the same pattern, and the pistons would be similar also, so that the drum or rotor itself is easily balanced. The rim of the drum is a good fit on the vanes of the stator only, for a short distance on each side of the combustion chamber, the rest of the rim being relieved. The drum would be made a good tight fit in the outer shell (stator), and then 'run in' under its own power at the normal turbine speed till the vanes were a perfectly gastight fit without causing friction. Then they should not wear any further. The vanes, being thin, and inclined in the direction of rotation, presumably made of cast-iron, would spring to a certain extent, which spring would be aided by the pressure of the gases.

"'Engineer' says: 'It would be necessary always to use the sparking plugs to give the correct time of firing.' The delivery of the charge is continuous, and even with a single-cylinder pump the delivery of the charge would only be jerky at very low speeds. He imagines there to be a succession of charges at very short intervals instead of a continuous jet of combustible gas.

"The cooling water is sprayed, not into the combustion chamber, but on to the vanes, immediately after they have done their work, so I do not see how the sparking plugs can be affected. The plugs are made accessible by an inspection cover, which is placed on the side plate on the exhaust side. I did not show this in my drawings published in *The Motor Cycle* for fear of confusing the main idea with unnecessary details.

"With regard to the valves in the piston, the one valve acts against the other, so that the net result of the centrifugal force on the valves themselves is *nil*. The valve stems could be guided by lugs cast on the piston walls. A careful study of the action of the piston has made apparent to me that, if the valves were set rigidly on the same stem a certain distance apart, so that when one was fully shut the other was fully open, the movement of the valve seatings in the piston ends to and from the camshaft, and the inertia or momentum of the valve heads, would cause a perfectly timed automatic opening and closing of the valves. Thus a spring to hold them on their seatings is optional."

A PUZZLING CASE.

DURING one of the pleasant periods of last summer, after having covered several hundred miles in the early part of the week with almost monotonous reliability, I arrived home in South Lancashire on the Wednesday evening with rather a good opinion of the "irresistible combination," consisting of myself and a 1907 Triumph, fitted with several 1908 improvements.

Having the rest of the week to spare, suggestions for a good two days tour in North Wales, emanating from a pedal cycling brother, decided me upon a run for the Friday and Saturday.

Friday morning broke beautifully fine, and soon the "combination" was hopping along the Manchester-Warrington road. Now, on the previous Wednesday's run home mentioned above, I had, knowing that the route selected was an easy one, carefully burred over the jet of the B. and B. carburetter until a pin point would only enter about $\frac{1}{16}$in., and as a result the consumption of petrol for 140 miles had worked out at about one gallon, but, of course, the engine would take very little air, and hills had to be taken fast with a well-opened throttle. As far as Warrington the "combination" did great things, and as the engine purred along I theorised complacently on the subject of perfect proportion of jet to choke tube, etc.

My Path was Barred by a Gate.

Outside Warrington the path across the "silvery stream" that leads to Manchester was barred by a gate, and as I waited alongside a little single-cylinder car that snuffled and gurgled, a feeling of pity for "those people who know nothing about ignition" almost overwhelmed me. There was no doubt the engine of this little car was missing rather badly.

As the bridge swung back and the gate opened, "Old Misfire" and the "combination" started out over the undulating road to Chester. Here I came to the first hill of any note, so opening the throttle well the machine took the first half splendidly, when without any warning a feeling occurred as though someone had applied the brakes hard, or a bearing had seized, and almost before I could move a finger to do anything a terrific backfire sent the engine backwards and brought

A Puzzling Case.—

the machine to a sudden stop. Overheating. Perish the thought. I felt at the cylinder and found it no hotter than usual. Slipped magneto pinion. Now just at that moment the noise of a misfiring engine resounded in my ears. Never would I be caught by that little car. So with a heave and a run the exhaust valve was dropped. And, wonder of wonders, the "combination" finished the rest of the hill in fine style. As I rode quietly along theorising upon the effect of a very fine jet upon ignition, a brilliant thought struck me. All that had been done to cause this stop was a wide opening of the throttle. So waiting for a straight piece of road, the throttle was re-opened wide, the machine leaped forward, and was gaining speed rapidly when again the feeling occurred of brakes being applied, and before the throttle could be closed another backfire fetched me off all standing.

Finding that the central wire of the Oleo plug was loose, I soon had it out, and replaced it with an old spare of the same make. "Old Misfirer" having loomed in sight, I quickly stuffed the hot plug into my pocket, and was soon running into Chester.

A Beautiful Run into Llangollen.

Through Wrexham and Ruabon the pace was kept down by poor roads, but as the beautiful run into Llangollen was entered on the throttle was more generously opened and the pace increased. Suddenly the feeling of a brake being steadily applied and an alarming slowing down of the machine caused me to close the throttle, and the braking effect died away, the speed of the machine increasing again.

As I rode slowly into Llangollen a vow was registered that the cylinder and piston should be cleaned on arrival at Barmouth.

We will draw a veil over the run through Corwen, past the beautiful Bala Lake, and the wild road to Dolgelly. Suffice it to say that the trouble steadily grew worse, and that between Dolgelly and Barmouth the back-fire occurred about fifteen times, stopping me every time the throttle was opened more than about one-quarter.

After a hurried tea the cylinder was dismounted and examined carefully for any signs of a projecting piece of carbon deposit, but without any satisfaction. So after cleaning the piston and cylinder and carefully scraping the points of the plug I set out for a short run to test the result. In the first mile at each opening of the throttle back-fires stopped the machine dead, and in a very subdued frame of mind I rode slowly back into Barmouth. A cart blocking the way in the main street, I jerked the throttle open a bit to dart past. The next instant I found myself stopped suddenly with the carburetter on fire. That evening was spent in such a pre-occupied state of mind that after addressing four or five picture post-cards to a friend I posted them at a pillar box, and then remembered there were no stamps on. Next collection, 6 a.m.

Six o'clock next morning saw me hanging suspiciously round that pillar box to waylay the collector. After squaring this matter up the problem was again tackled as to how I was to do 170 miles that day over hilly roads on a machine that jibbed at every milepost on the road.

The garage was tackled for a new plug, but had no suitable ones. However, the proprietor kindly took a sparking plug out of one of his cars for me to try. A run of a few miles along the Dolgelly Road proved that this had entirely cured the trouble. Returning, I tried to buy that plug, but without success, so, making the best of a bad job, I carefully repacked the old plug and reduced the engine gear ratio to about 5 to 1 with an idea of climbing the hills with the throttle partly closed.

Proceeding quietly along the coast road to Harlech, I began to find that the engine would now stand the throttle well open on the hills, and turning sharply to the right at Portmadoc, the machine climbed the hill through the village splendidly, despite a very strong head wind. A short stop on the bridge at Aberglaslyn to admire the beautiful view proved to me that I had a stiff ride to tackle, for the wind was fairly lifting stones out of the road, and the rise is 700 feet in three miles to the Penygwrhyd Hotel. Without a falter the machine landed me at the hotel door, and here a short stop was made for refreshments, and the gear put back to 4¼ to 1.

A fast downhill run through Bethesda to Bangor proved a grand change to the performance of the day before, and I entered joyfully on the long pull against the wind through Conway, Colwyn Bay, and St. Asaph. After mistaking the route, and arriving in Denbigh when I was expecting to reach Mold, I got along finely and ran into Chester about five o'clock.

To my sorrow it proved to be Chester Cup day, and a push of half a mile through the crowd took a bit of the gilt off the gingerbread.

Home was reached about seven o'clock in the evening, the day's run having proved one of the best I have ever undertaken.

The Sequel.

Now comes the sequel. On Monday morning, having a journey of about four miles to make, I started off, and on the first long hill the back fire occurred no less than four times, stopping the machine each time. I had taken the precaution of carrying a new plug, and on putting this in, the trouble ceased, and has never occurred again.

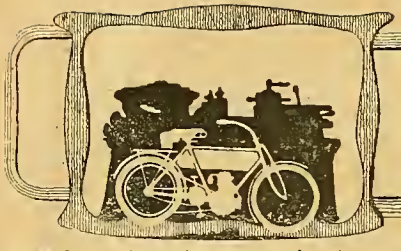
In this yarn I have tried to describe as well as possible the whole of the trouble, and it would be interesting to hear some other readers' ideas on what was the real cause of it.

Of course, we know it was the plug at fault, but where? Both plugs had done over one thousand miles, and were of a very reliable make, as I have run a similar plug five thousand miles without trouble.

I have satisfied myself of the cause, and should like to know if my opinion coincides with others of the fraternity.

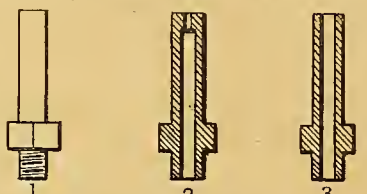
F. LUCAS.

Messrs. Priest and Co., 66, Bishop Street, Birmingham, inform us that they expect to place on the market very shortly a pocket flash lamp with two-volt woven glass accumulator, Osram metallic filament lamp, bull's-eye lens with adjustable focus and switch with metal cap to protect it. The production of this lamp has been inspired by a paragraph by "Road Rider" in *The Motor Cycle*, who recently wrote respecting the usefulness of an electric pocket flash-lamp. The size of the new lamp will be 4¼in. × 1⅞in. × ⅞in., and the weight a little over four ounces.



ADJUSTING and TESTING CARBURETTERS.

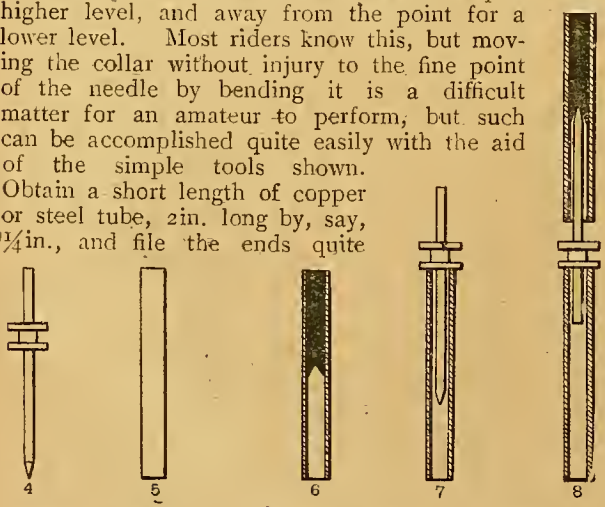
HOW often do we see in the questions and replies columns of *The Motor Cycle*, "Test the level of the petrol in the jet," etc., but how many riders know for certain to what height the level of the spirit rises in the majority of carburetters when *in situ*, for the very simple reason that the jet is inaccessible when in position on the machine. A casual glance at most machines will confirm this, and all intelligent riders will agree that the adjustment of the carburetter has a great deal to do with the satisfactory running of the engine. The accompanying drawings show a set of tools which will enable any intelligent reader to test the adjustment of the carburetter, also to carry out the necessary alterations if not correct. I refer to the predominant type of spray carburetter as used on motor cycles. Referring to the drawings, 1 shows a jet tube, 2 is the jet tube in section, and 3 is what is known as a dummy or testing jet tube. The latter is an ordinary jet tube as used in the carburetter, but drilled out as shown, so that one can readily see the level of the petrol spirit as it stands in the tube. It is obvious that it is impossible to see the level of the spirit in a standard jet by reason of the small size of the spraying hole in the top.



1 and 2—Ordinary jet tube.
3—Dummy or test tube.

Altering the Collar on the Needle.

Drawing 4 is the usual type of needle valve, and to alter the level of the petrol in the jet tube we move the collar shown on the needle nearer to the point for a higher level, and away from the point for a lower level. Most riders know this, but moving the collar without injury to the fine point of the needle by bending it is a difficult matter for an amateur to perform, but such can be accomplished quite easily with the aid of the simple tools shown. Obtain a short length of copper or steel tube, 2in. long by, say, ¼in., and file the ends quite true and square (5). A similar piece of tube 6 is partly filled with lead, the space occupied by the lead being shown black.

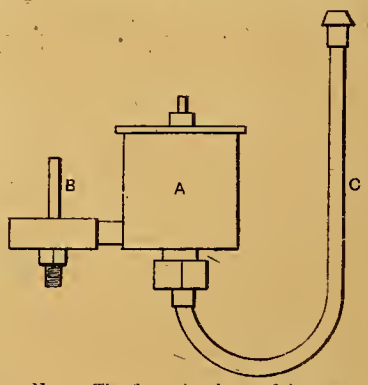


Needle valve and special tools employed for moving collar on needle valve.

Now, supposing we wish to reduce the level of the petrol in the jet tube, we place the needle in the tube 5 (as shown in sketch 7), and by tapping the top of the needle the point is caused to move away from the collar. When the float and needle are reassembled in the carburetter it will be found that the petrol is cut off earlier, and therefore does not mount to the same height in the jet tube as before. If it is desired to raise the level in the jet tube, we place the blunt end of the needle in tube 5, and the tube 6 over the end of the point (see sketch 8), and by tapping the end of tube 6 we move the point nearer the collar, thus raising the level of the petrol in the jet tube.

A Special Tool for the Needle.

The lead filled tube 6 can easily be made by plugging one end of the tube with a rivet or screw, heating the tube in a gas jet, and allowing a small stick of solder to melt and flow down the tube to the required depth. The tube should be first cleaned inside and a flux used to ensure all the solder adhering to the tube all over. After being filled with solder, a drill of the same diameter as the inside size of the tube should be run down the tube, so making a coned recess in the solder which ensures the needle point being kept central with the tube. Then when a blow is delivered on the top of the tube the needle point will bear evenly on the solder and prevent the needle springing a.d bending.



No. 9—The float chamber and jet tube connected to a special short petrol pipe ready for testing the level of the spirit in the jet tube.

Now comes the question, How is it possible to fix the carburetter in an easily accessible position, so that we can see the petrol in the test tube? Some carburetters can be turned at right angles to the usual position and held vertical while the petrol is turned on, but in cases where it cannot be so held we shall require a short piece of pipe and two unions the same size as those on the petrol pipe of the machine. The carburetter can then be fitted on the pipe as shown in the drawing No. 9, having the float chamber in an accessible position.

It is essential that the machine be supported vertically while these tests are being made, and that the float chamber is in the same vertical plane as the

LOOK OUT FOR NEXT WEEK!!!

The 1910 ZENITH-GRADUA

with 85 m/m x 88 m/m Zenith Engine and Gradua Gear.
An absolutely Standard Model,

Is going for a BROOKLANDS

RECORD.

WILL THE 1910 MODEL DO IT?

The Gradua Gear being infinitely variable between the high and low limits, renders it easy for the rider to suit his gear to any condition of road, hill or traffic, thus scoring immensely over any form of Two-speed Gear.

GRADUA GEAR FOR TRIUMPHS. 12 Gns. **Zenith Motors, Ltd., Weybridge.**

---

85 x 88 N.S.U. engine, double row ball bearings to engine shaft. Bosch Magneto, gear driven. Spring Forks. Weight 165 lbs.

Extra large flywheel, M. O. I. Valve, Carburetter, handle-bar control.

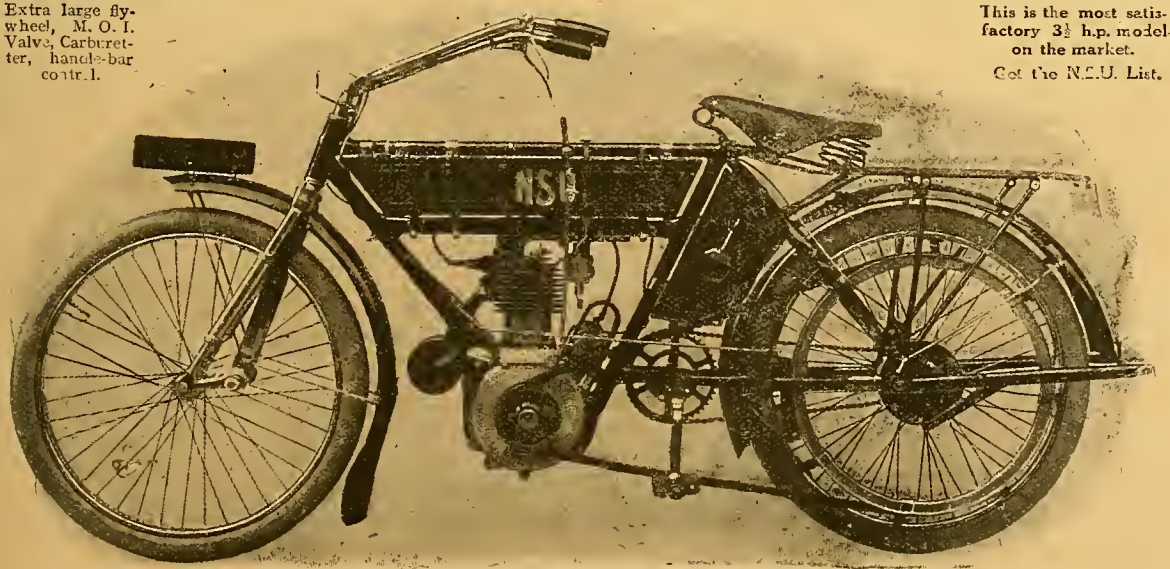
N.S.U.

3½ h.p. Model de Luxe.

Low frame, rear half of back mudguard detachable, Exhaust Cut-out. Internal expanding brake, and belt rim foot brake. Tool Case with tools Tank capacity: 1¼ gals. petrol, 1½ qts. oil. Two-speed gear and free engine pulley at extra cost.

This is the most satisfactory 3½ h.p. model on the market.

Get the N.S.U. List.



N.S.U. MOTOR CO., LIMITED.

Offices and Showrooms:
186, Great Portland St., London, W.

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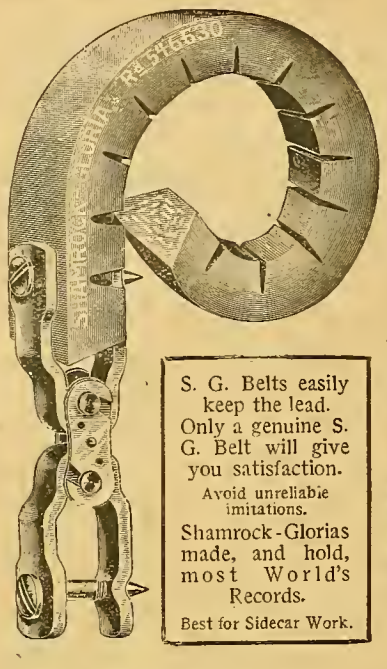
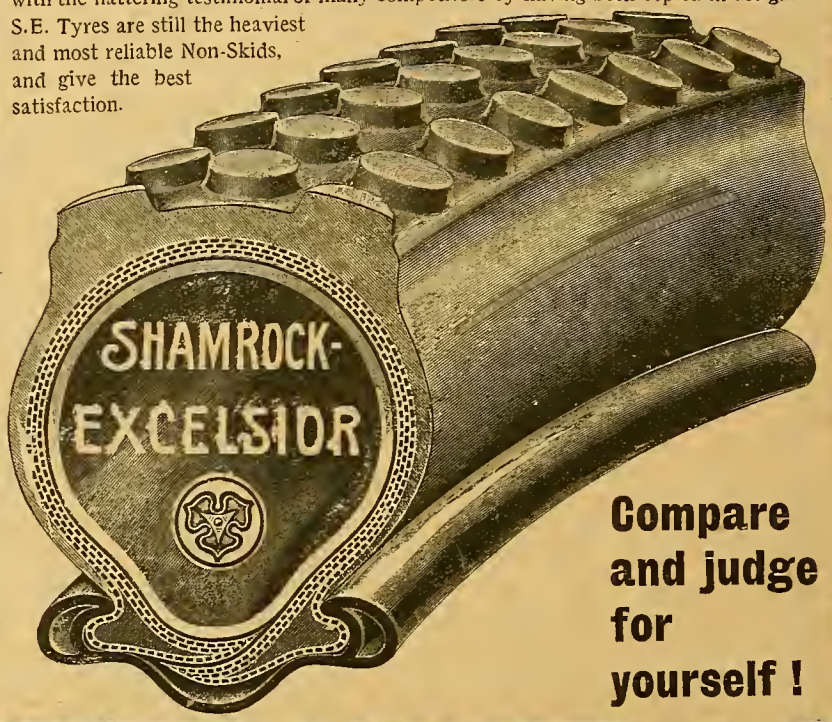
S. E. Tyres start the year 1910

with the flattering testimonial of many competitors by having been copied **in design.**

S.E. Tyres are still the heaviest and most reliable Non-Skids, and give the best satisfaction.



S. G. Belts easily keep the lead. Only a genuine S. G. Belt will give you satisfaction.
Avoid unreliable imitations.
Shamrock-Glorias made, and hold, most World's Records.
Best for Sidecar Work.



Compare and judge for yourself !

Write for Complete Lists.

SOLE MANUFACTURERS—
The HANOVER RUBBER CO.,
29-31, Old St., LONDON, E.C.

DON'T MIND ALL TALK

about just as good, "or better," even though it comes from us, BUT

(HA! HA!)

COME and see the MOTOSACOCHE
HAVE a trial on the MOTOSACOCHE

SEEING IS BELIEVING.
TRYING IS CONVINCING.

You will find that what we say about the

MOTOSACOCHE
IS
QUITE TRUE.

V Belt with direct drive, or round twisted belt and jockey pulley is optional.

65, Holborn Viaduct, LONDON, E.C.

Adjusting and Testing Carburetters.—

engine on the machine; the machine should rest on a level floor, and not be supported on the stand. The pipe supports the float chamber, which must be kept in an absolutely vertical position, which is easily obtained by bending the pipe. The drawing will show the method adopted. A represents the float chamber, B the test jet, and C the special pipe. Of course, the shape of the pipe will depend on the position of the petrol tap in the tank, but the one shown, a simple U-shaped pipe, will suit most machines.

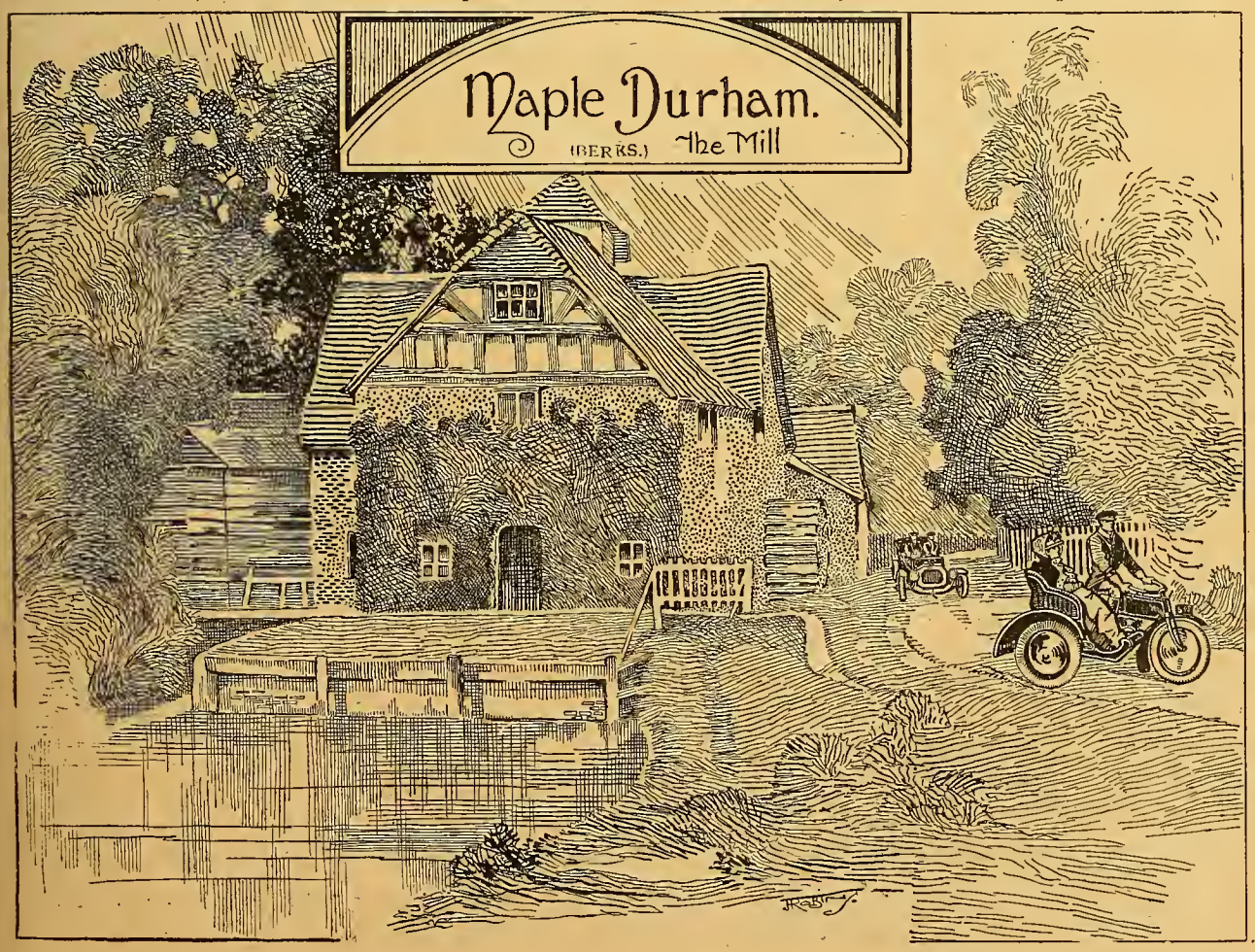
Before testing the carburetter, clean it out thoroughly and grind in the needle valve; also see that the balance weighted levers are free and working correctly, and that the float is not punctured.

When testing, turn on the petrol and allow it to run into the float chamber, but do not touch the needle; note the level of the petrol in the jet tube, then turn off petrol and drain the float chamber. Proceed as before, and see if the petrol rises to the same level twice in succession; if it does it is safe to assume that the float chamber is working satisfactorily, and that the spirit is cut off at the right time. If petrol drips from the carburetter it is usually an indication that the level is adjusted too high or the point of the needle requires regrinding. A little time and patience spent in testing the carburetter are well worth the extra trouble entailed, but if the job is a hurried one it often results in a false level, and consequent difficulty in starting from cold and loss of power on hills.

With the simple tools described in this article, testing carburetters will be rendered quite a simple job, and will also be very interesting to the rider who likes to know his machine. PILSI.

THE TRANSMISSION QUESTION.

ALTHOUGH advocates of chain transmission, and transmission by means of chain belts, have become more numerous lately, the ordinary V belt, especially of the rubber and canvas variety, has not been ousted by any means yet. Even for heavy passenger work belts are found quite satisfactory. The opinion of Mr. Vivian Olsson, the erstwhile holder of the End-to-end sidecar record, is interesting. It may be remembered that he used only one belt (a 1⅛in. Shamrock-Gloria) on his End-to-end trip, and since then he has run well over another 1,000 miles with the same belt on his 7 h.p. twin V.S. and sidecar. He says: "The S.G. belt is still in good condition and certainly good for at least a further 500 miles. When one can get belts that will take a heavy and powerful machine like mine plus sidecar for, say, 2,500 miles, those who advocate chains because they say belts are not strong enough seem to be a bit out. In every other respect, such as silence, smoothness of drive, etc., belts are already admitted to be superior to chains."



A33

Hints and Tips for Motor Cyclists.

By Road Rider.

SHARP-EDGED HANDLE-BAR FITTINGS.

327. I often wonder how much longer motor cyclists will put up with the spiky fitments attached to most handle-bars, especially on the clip of the exhaust valve lifting lever, and to a less degree on certain types of carburetter control. Many of these clips simply bristle with sharp edges and angles, and as a motor cycle is very frequently ridden with gloveless hands, these sharp edges abrade the skin of the fingers, and even rip the glove when gloves are worn. There is no really neat and presentable method of padding them either.

BAD ACCELERATION ON THE THROTTLE.

328. There are two main causes of an engine's seriously failing to respond when the throttle is opened. The first occurs only with a.o.i.v., and is due to the springs being weak or dirty. The second is bad mixture, which may result from using the wrong sizes of jet and air hole, so that there is an excess of petrol vapour when the throttle is slammed open; or may equally result from a long inlet pipe, or a pockety inlet pipe, full of bends and corners, in either of which pipes liquid petrol is apt to accumulate and cause a rush of rich mixture when the engine is accelerated.

POPPING BACK.

329. This is the name given to the sputtering puffs often heard in a badly adjusted carburetter, the back rush of which may be felt if the hand is laid over the extra air intake, and which often set a carburetter on fire (in this case turn off the petrol tap at once, and beat the flames out with your cap). The causes of this popping back are twofold. In rare instances the popping is due to wrong timing of the inlet valves, due to wrong meshing of the cog wheels, or to very weak springs, or a binding valve stem, each of which may allow the inlet valve to remain open during a part at least of the explosion stroke. The commoner cause is too weak a mixture. A weak mixture burns slowly, and is consequently still in a flaming condition when the properly timed inlet valve opens. Its flames ignite the fresh charge, which thereupon explodes prematurely, and blows back into the carburetter, so producing the popping noise described.

STARVING OF THE CARBURETTER.

330. Occasionally an engine will start off beautifully, but within a few yards begin to sputter, and quickly stop. If this behaviour is due to the carburetter, it is due to one of two things. Either freezing is in process; in this case it is probably necessary to warm the air supply, or to hot-air jacket the carburetter, but in some cases the removal of any gauze partitions in the inlet pipe may suffice, as freezing covers them with a film of snow. Or the supply of petrol is insufficient for the engine speed, owing to too small a jet, or obstructions in the petrol pipe, carburetter, or petrol filter. Reamering out the jet or cleaning the supply parts will effect a ready cure.

THE AMAC CARBURETTER.

331. A few of these carburetters appear to have been sent out with throttle springs which are not quite strong enough to keep the throttle valve down on its seat against the fierce suction of a good engine, with the result that the engine cannot be run slowly, nor stopped by pulling back the throttle lever. The makers will supply proper springs gratis. Some owners of these carburetters are ignorant how to adjust the petrol level. This is very simply done, as the needle valve spindle slides tightly in a brass tube of narrow bore, and its length may be altered by tapping it up and down in this brass tube. The adjustment of the lift of the two valves on these carburetters requires to be carefully done, and can only be verified with the racing type by testing the behaviour of the engine in actual running, though with the touring type the lift of the throttle valve can be seen when the inlet pipe union is detached. It should be remembered that adjustments are performed by the Bowden adjusting collars at the handle-bar ends of the wires. Screwing these collars out from the bracket *increases* the lift of the valves, and *vice versâ*.

TWINS STARTING ON ONE CYLINDER ONLY.

332. If once in a way a twin-cylinder engine starts on one cylinder only, the other chipping in after a few yards, the explanation may be any kind of temporary defect in the reluctant cylinder. But if as a general rule the engine starts on one cylinder only, the most probable reason is that the spring of one of the automatic inlet valves is stronger than the other or the valve sticks on its seat. The two inlet valves should be taken out, and the ends of the stems pressed together; the valve which opens first has the weaker spring, and its spring should be increased to the strength of the stronger one. If both springs are too strong, the engine will be very difficult to start. A strong spring may be reduced by cutting off a coil, by filing off some of the depth of the cotter, or by holding the spring compressed in a vice or spanner for a few hours.

BADLY SOLDERED PETROL UNIONS.

333. One of the most awkward mishaps to put right by the roadside is a coned petrol union which has come unsoldered from its pipe. Directions have been previously given for patching up a makeshift union with string wrapping and soap or seccotine, but such a makeshift joint cannot last long, and the rider's best plan is to make sure that the unions are properly soldered. Before a long trial the writer invariably disconnects the petrol unions, and remakes them, and, except on a few first-class makes, he often finds the joint is only held by a "wire" of solder. The end of the pipe butts into a socket on the coned union, which is a good ¼in. in depth, and the coat of solder should be the full depth of this socket. This ideal can probably only be attained by thinly coating the end of the pipe for ¼in. all round with solder, heating the coned socket, thrusting the pipe in carefully and centrally (so as not to squeeze off the soft solder on to the rim of the union), and finally by repeated applications of heat, flux, and solder, running the joint full up with solder. If such a joint has to be remade, and the rider cannot do it himself, he should insist on standing over the mechanic, and assuring himself that pipe and union are soldered for the whole of the ¼in. by which they overlap. Otherwise trouble is probable.

CONVERTING OBSOLETE MACHINES.

334. Owners of prehistoric machines, fitted with such sound engines as the M.M.C., Buchet, De Dion, Excelsior, etc., should realise that the obsolete high frame is probably the worst portion of the machine, as the lofty position of the rider makes the machine liable to skid. Now, a frame is the cheapest item among the main components of a motor bicycle, and a brand new low frame, such as the Chater Lea No. 6, is quite inexpensive, while from sales of bankrupt stock and the like a complete low frame can often be picked up for an old song. If the engine and fittings of the old machine be reassembled on such a frame, the machine will be infinitely pleasanter to ride. Other desirable details, such as a modern carburetter and a pair of spring fork attachments and a belt rim brake, may similarly be obtained by the astute buyer for very small sums. They often figure in the miscellaneous advertisement columns of *The Motor Cycle* at quite nominal prices. In particular the new frame will make it possible to use a large diameter belt-rim of correct angle with an adjustable pulley, and the fitting of a ⅞in. or ¾in. belt will reduce trouble considerably. No doubt what the owners of ancient machines chiefly desire is a high-tension magneto, but these are neither cheap to buy nor easy to fit. I should rather recommend a first-rate single-cylinder make and break contact breaker of large dimensions, with substantial adjustments, to be substituted for the small and flimsy pear-shaped device previously employed. These are almost as reliable as the magneto contact breaker. The accumulator box may then be lined with sheet rubber seccotined in place, and all the holes by which wires emerge from the tank carefully lined with rubber. For £5 or so a 1903 machine may thus be transformed into a far more reliable and comfortable mount, and when it is desired to dispose of it, the new mount will command a proportionately higher figure. The great point is not to hurry one's detail purchases, but to wait until the parts required are advertised at a bargain price.

WRITE FOR PARTICULARS OF

THE

SCOTT

PATENT NON-SKID
MOTOR CYCLE TREAD.

"The alternate steel and rubber studded Tyre."

Will not skid on wet or dry roads.

J. LIVERSIDGE & SON, LTD. Chief Office: 196, OLD STREET. ESTABLISHED OVER FIFTY YEARS.

SCOTT

TWO STROKE. FREE ENGINE.
TWO SPEEDS. CHAIN DRIVE.
TWO-CYLINDER. SELF-STARTER.

"The Car," Oct. 6th, 1909, in commenting upon the Tourist Trophy Race, says: "A point which probably appealed more to the public than anything else was the sensational start of the Scott machine, with two-speed gear and clutch, which enabled it to move off the mark with great celerity, and without effort on the part of the driver."

The Scott Two-speed Gear and Free Engine

is the only chain-driven, two-speed machine on the market fitted with a frictionless gear. There are no phosphor bronze or wearing materials embodied in its construction, and the whole mechanism being of high grade, case-hardened steel, the gears may be slipped and changed as frequently as desired without any wear or renewal of parts at any time. Remember—there are no gear wheels—simply two expanding clutches, and it is the only gear fitted with a central drive. Further, it has no overhung bearings.

The All-weather, Go-anywhere Machine.

The Scott Engineering Co., Ltd., MORNINGTON WORKS, BRADFORD.
Sole London Agents: The Service Co., Ltd., High Holborn.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—9d. per line of 8 words; minimum, two lines. Name and address must be counted. Thus—

Two lines (16 words or less) costs 1/6
Three lines (24 words or less) costs 2/3
Four lines (32 words or less) costs 3/-

In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), on Tuesday morning previous to the date of issue.

When possible advertisements received at Coventry on the Wednesday will be inserted.

All letters relating to advertisement should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man

Wauchope's Brilliant Lead-off for 1910.

WAUCHOPE'S, 9, Shoe Lane, Fleet Street, London, E.C., is a house where you can deal with perfect confidence You can at all times rely upon Wauchope's treating your interests identically as they would their own, and experience has taught you that you cannot quite say the same of everybody.

WAUCHOPE'S, 9, Shoe Lane, Fleet Street, London, E.C., do not merely supply new motor cycles of the leading and most reliable makes in the market, but they supply these constantly in the course of their business. This house does not gain your trust to-day, and lose it to-morrow. Why? Because they lend their name and reputation to such things only as will enhance esteem on the part of their friends, and convince them that at **WAUCHOPE'S** honesty is before halfpence!

WAUCHOPE'S, 9, Shoe Lane, Fleet Street, London, E.C., have a special reputation attaching itself to that part of their business which is so favourably and popularly known as their exchange system. By this splendidly useful method of dealing, on the part of this house, there is really no such thing as a worthless machine. Every machine possesses in itself a certain cash value, so that your old machine becomes an asset towards the part payment of your new one. The wisdom and fairness of this style of trading is beyond all praise.

WAUCHOPE'S, 9, Shoe Lane, Fleet Street, London, E.C., never curtail their customers on the point of selection. The fact of the matter is that at **WAUCHOPE'S** you find a range of choice which you cannot discover elsewhere. These goods are no mere "decoy ducks," but are really excellent machines, all ready for the road, and guaranteed to the purchaser. When you get **WAUCHOPE'S Guarantee** over a transaction, you find that such a warranty is a guarantee in fact and deed; not a mere verbiage of words which are meant to be meaningless. If you have dealt at **WAUCHOPE'S,** you know this already.

WAUCHOPE'S, 9, Shoe Lane, Fleet Street, London, E.C. have some genuine specimens of art and utility in second-hand Triumph Motor Cycles, free engine, and direct drive models. They are also showing others on two-speed gear principle at prices ranging from £12 10s. We will feel sorry if circumstances prevent your honouring us with a personal inspection of these magnificent goods; but if such a call really cannot be managed, we sincerely request that, in your own interests, you will write us, and thus afford us an opportunity of sending you full particulars by post, with our characteristic promptitude.

WAUCHOPE'S, 9, Shoe Lane, Fleet Street, London, E.C., are showing some bargains really worth looking at in 1909 BRAND NEW MOTOR CYCLES. This, to "the man in the street," is one of the chances of a lifetime, and life is too short to omit such an opportunity. These motor cycles emanate from the leading manufacturing houses, and the reputation of the makers is more than a guarantee for their excellence. Please note that **WAUCHOPE'S** are offering them at sacrificial prices, and we are confident that if you miss seeing these, or getting to know all about them, you will miss a value very hard to recoup, and equally rarely obtainable!

WAUCHOPE'S, 9, Shoe Lane, Fleet Street, London, E.C., would very specially invite the practical attention of all competent judges to their admirably finished Second-hand Roadsters, ranging from £8 10s. and upwards. To all on the outlook for machines where style, workmanship, and condition are paramount features, these machines possess a very special value. They are thoroughly sound and perfect, and are of such a character as to do hard work, and to do it thoroughly. They may be at all times implicitly relied upon on the road to perform their part of the work, with unswerving accuracy and faultless satisfaction. This is a line which will quickly disappear from a purchaser's opportunity, and accordingly reason dictates that the sooner the opportunity is seen to and adopted, the better will it be all round for the purchasers themselves.

WAUCHOPE'S, 9, Shoe Lane, Fleet Street, London, E.C., are never "cribbed, cabined, and confined," in the selections which they offer; and in this year of grace 1910 Wauchope's are, in this important aspect and feature of their enterprise, in a better position than ever. This is saying much, but a visit and inspection of the lines exposed for sale will, we confidently state, more than fully justify the assertion, there being on hand at the present date a stock of no fewer than 200 NEW AND SECOND-HAND MOTOR CYCLES on submission for the selection of buyers who know and appreciate what genuine worth and merit really mean!

WAUCHOPE'S, 9, Shoe Lane, Fleet Street, London, E.C., in the ordinary conduct of their business take care that every machine carries its own guarantee of fitness and excellence. This has ever been the principle of **WAUCHOPE'S** during the years which are gone, and it will continue to be throughout the time to come; and that all their patrons, new and old, may enjoy a thoroughly happy and prosperous season is the sincere wish of

WAUCHOPE'S, 9, SHOE LANE, FLEET ST., LONDON. E.C.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days, and if no sale is effected, each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmoreland.

5½h.p. Twin Rex, magneto, spring forks, new adjustable pulley, rubber studded tyres, equal new, spring cantilever seat, B100 saddle, Roc free engine clutch, handle starting, twin back tyres, absolute non-skid, acetylene lamp; bargain, £24.—4, Thorburn St., Fulwell, Sunderland.

SECTION II.

York and Lancashire.

CROSS for Triumphs in Rotherham. 1910 model in stock; order early; £48 15s.

1906 Minerva Twin, Bosch magneto, Brown and Barlow, spring forks and seat; £25.—Cross, Triumph Agent, Rotherham.

1910 Ariel, Douglas, Bradbury, Norton, F.N., Indian, Premier, N.S.U.—Gourlay, Fallowfield.

1909 Rex, guaranteed perfect, only minus pedal; offers—Coates, Ellerton, Richmond, Yorks.

2¾h.p. De Dion, Chater-Lea, 26in. wheels, good condition; £7 10s.—Simpkin, 5, Link St., Longsight.

2h.p. Humber, chain drive, splendid condition, new tyre back, front good.—Tinsley, Fulford, York.

VINDEC, 5h.p., magneto, twin Truffault forks, perfect order; £23, or offer.—39, Bell Hall Terrace, Halifax.

1909 Triumph, fine condition, little used, Mabon clutch, new re-treaded back; £39.—Walker, Church Lane, Liverpool.

2½h.p. Ariel Lightweight, good running condition, accumulator; cheap, £9. — Botterill, St. James's Chambers, Harrogate.

1909 Triumph, 3½h.p., standard model, brand new as unpacked; £38 cash.—Moldgreen Engineering Wks., Huddersfield.

1908 N.S.U., 3½h.p., magneto, 1910 Mabon free engine clutch, ridden 200 miles; owner's health cause of selling; reasonable offer.—Write, Alwyn, 29, Malsir Rd., Keighley.

1909 Triumph, guaranteed, grand condition, little used, searchlight lamp, tools and spares, splendid hill-climber, new August; £36.—White, 60, Bank St., Mexborough.

1910 Rex, 3½h.p., tourist model, immediate delivery from stock, with all latest improvements; exchanges entertained.—F. C. Jones and Co., 3, Redeross St., Liverpool.

BIGGEST Bargain ever offered.—3½h.p. Quadrant, in good running order, complete with belt, coil, accumulator, horn, tool bag, number plates; £4 19s. 9d.—Booth's Motories, Halifax.

TRIUMPH, late 1909, Cowey, Lucas headlight, Premo shock absorber, spares, not done 2,000, as new; £42, or near offer; seen by appointment; no exchange; owner buying car.—Heywood, 86, Clyde Rd., W. Didsbury.

1909 F.E. Triumph, only been run 2,000 miles, good condition, Glare headlight, Cowey speedometer, nearly new Dunlop non-skids; best offer accepted for immediate sale.—Samter, 55, Palatine Rd., Withington, Manchester.

MOTOR BICYCLES FOR SALE.

LEPHANT Motor Mart.—5h.p. 1907 Twin Rex, £11; 5h.p. twin Bercley, £12 10s.; 2½h.p. Ormonde. 2h.p. Minerva, £5; Singer tricar, magneto, £7; we , sell, or exchange motors and goods; state wants.

LEPHANT.—Sole London Agents for 1910 Coventry Arno; £45; delivery from stock; liberal exchanges. 0 and 12, Elephant Rd., London.

.p. M.M.C., Chater-Lea No. 6 frame, Davison's tank, petrol gauge, Palmer cord, footboards; £16. hange lower power and cash.—H.S., 33, St. Stephen's , Bow, E.

ERRY (Sarolea), 2½h.p., Chater frame, Brooks saddle, Dunlop tyre, £5; Whittle belt, 9s. 6d.; nel belt, 7s. 6d.; Moseley cover (new), 10s. 6d.—130, xton Rd., S.W.

1h.p. N.S.U. Twin Lightweight, new last September, 2 lamp, horn, handle-bar mirror, watch, spare er and belt; £34.—Crook, 38, Ashchurch Park Villas, pherd's Bush.

INERVA, 1908, 3½h.p., magneto, spring forks, non-skids, adjustable pulley, splendid condition; £20.—Kenmure Rd., Mare St., Hackney, London. Great bar- n; must sell.

OC Clutch and two-speed geared 3½h.p. motor cycle spring forks, H.B. control, low, just overhauled reliable; £16, must sell.—619, Lea Bridge Rd rton, London.

1h.p. Vindec Special, Bosch magneto, B. and B., H.B 2 control, Truffault forks, Dermatine, adjustable ley, low, in good condition; £17.—E. Mawer, 104, sham Rd., Putney.

.N., 5-6h.p., done one season, perfect condition, handle-bar control, footrests, practically new tyres, re Michelin non-skid, Brooks bags, spares, etc.; £35. enton, Rickmansworth.

ARGAIN.—3½h.p. Stevens, overhead mechanical valves, guaranteed new condition throughout; n for debt; no use to owner; £12 10s.—Boot Shop High St., Putney, S.W.

WIN Rex, November, 1909, not been 50 miles spares, lamp, horn, two belts; offers; exchange h.p. 2-cyl. tricar.—Box No. L884, *The Motor Cycle* ces. 20, Tudor St., E.C.

08 2½h.p. Magneto Rex Lightweight, Brown and Barlow carburetter, handle-bar control, every- g absolutely as new, guaranteed; £17, or nearest —35 Arlington Rd., Surbiton.

.h.p. Rex, fine condition, Longuemare, good climber tyres good, unpunctured back B100 saddle, low tion, comfortable; sacrifice £8, appointment.—E. E. ker, 241, High St., Brentford.

N., 5-6h.p., 1909 model, perfect condition, tyres tools, accessories, etc., complete; on view 106, Gt land St.; £35—Preston, St. George's House, East- p. Owner leaving for Australia.

h.p. Twin Peugeot, 1908 model, had very little use original tyres, also everything in first-rate order; t have room; sacrifice £15.—Owner, 4, Westbury lene, Hanger Lane, Ealing, W.

G. FENN'S Speed King Rex, 1909 machine, 1910 twin engine, new condition, latest improvements; rts invited; sacrifice £28 for quick sale.—Apply 7 Mortimer Market, Tottenham Court Rd., W.

h.p. Minerva, 1909, not ridden 400 miles, Mabon clutch, variable pulley, splendid machine, as new. l spares; £25, cash bargain; sidecarriage, Mills, up ered, Bates band, £4, perfect.—S. Blenkern, 58, rwell Rd., Beckenham.

ANTON'S Bradbury, 1909, winner several gold medals, equal to new, specially tuned up, unpunc ml R.O.M. tyres; take £30, with lamp, tools, spares, ssories, finest machine on road.—619, Lea Bridge Rd. on, London.

S.U., 1908, 3h.p., magneto, M.O.V., fine hill-climber fast, reliable as clock; £15, to clear.—Stanton ew.

YL. F.N., 4½h.p., and nearly new Chater-Lea sidecar all spares and accessories, absolutely perfect con- ltn; take £26 to clear.—Stanton, 619, Lea Bridge Rd Leyton, London.

E Bargain of the week (29).—2½h.p. Peugeot (just been rebushed), vertical engine, 26in. wheels, new elin back cover, long handle-bars, low saddle ion, fast, powerful, horn, toolbag, stand, two new Continental tubes.—12, Market Sq., Horsham x.

RGAIN, £20.—4½h.p. Roc, two-speed gear, Roc clutch, magneto ignition, spring fork, Dunlop tyres fitted with iron studded hand, very powerful ma- h, take any hill with sidecar; also Millford sidecar, od condition. £5.—Write, S.R., 46, Regent St., Lon- W.

09 Chater No. 6 Frame, 5h.p. twin Rex, magneto Amac carburetter, handle-bar control, latest ion free engine clutch, adjustable pulley, lin- 7tle, foot brake, accessories, mirror headlight, rous spares, fitted Chater sidecar, headlight, per- ct £28.—Letters, 28, Siddons Rd., Tottenham, N.

EARANCE.—2½h.p. Kerry, £8 10s.; 6h.p. twin An- toine, £17 10s.; 2½h.p. Brown, £8 10s.; 2½h.p urant, £4 10s.; 2½h.p. J.A.P., £8 10s.; 2½h.p. Phœ- ix magneto two speeds, £14 10s.; Rex de Luxe, clutch neto, twin, £20; ditto, £25; exchanges; please call rite; trials.—128, High Rd., Tottenham. 'Phone, 9, Tottenham.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

BARGAINS IN

1909 REXES. 1909

1909 3½ h.p. Tourist REX £38
1909 3½ h.p. REX DE LUXE, 2-speed £48
1909 5 h.p. REX DE LUXE, 2-speed £50
Compare these with 1910 prices.

1910 REXES. Liberal Exchanges.
Deliveries from stock.

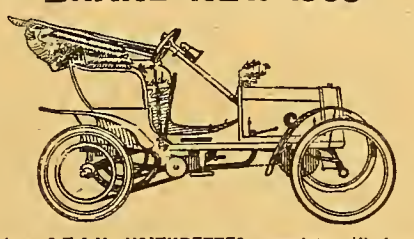
SIDECAR MACHINES.

1909 5 h.p. TWIN REX, nearly new	£32 10
1908 Twin Tourist REX, magneto	£26 10
1908-9 four-cyl. F.N., fine condition	£25 10
1908 REX DE LUXE, magneto	£32 10
1907 Twin Magneto REX, spring forks	£20 0
1907 5½ h.p. Twin REX, spring forks	£16 16
5 h.p. Twin N.S.U., magneto, 2-speeds	£24 10
7-8 h.p. Twin MINERVA and N.S.U. Sidecar, very smart lot	£29 0
Twin WERNER Lightweight, spring forks	£12 10
5½ h.p. REX DE LUXE, Roc clutch	£25 10
6 h.p. Twin ANTOINE, extra good	£18 16
Twin CLEMENT, spring forks, spray	£9 15

SPECIAL BARGAIN.

5½ h.p. Twin REX, spring forks, 26in. wheels, and brand new Art Cane sidecar. Trial Given. **20 Guineas.**

BRAND NEW 1909



5½ h.p. **O.T.A.V. VOITURETTES**, complete with hood, lamps, tools, and spares.
£60 each. Magneto ignition £5 extra.

"POPULARS."

3½ h.p. Magneto Triumph, brand new	£43 10
1909 3½ h.p. Magneto REX, like new	£32 10
1909 3½ h.p. REX Speed King, as new	£35 0
1909 3½ h.p. two-speed HUMBER	£35 0
1908 3½ h.p. Magneto REX, spring forks	£24 10
1908 3½ h.p. 2-speed REX DE LUXE	£30 0
1908 3½ h.p. N.S.U., spring forks, as new	£26 10
4 h.p. ROC magneto, clutch, good	£24 0
1908 3½ h.p. Mag., N.S.U., spring forks	£19 10
4 h.p. ANTOINE, high tension magneto	£18 18
3 h.p. Magneto SIMMS, 2½in. Palmers	£16 10
3 h.p. SINGER, V belt, H.T. magneto	£16 10
1907 3½ h.p. QUADRANT, spring forks	£17 10
1907 3½ h.p. BRADBURY, 26in. wheels	£13 10
3 h.p. ZEDEL, vertical, 26in. wheels	£13 0

SPECIAL BARGAINS.

3 h.p. HUMBER, spray, free engine	£10 10
3 h.p. BRADBURY, long and low	£10 0
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. STEVENS, H.B. control, band brake	£13 10
3 h.p. CLYDE, magneto ignition	£15 0
2½ h.p. KERRY, light and low, spray	£9 10
2¼ h.p. REX 22 f ame, re-enamelled	£7 10
3 h.p. BEESTON-HUMBER spray	£9 10
3½ h.p. WERNER, used with passenger	£13 10
2½ h.p. Light ARIEL, low build	£8 15
2½ h.p. LLOYDS, vertical spray	£6 0
2 h.p. F.N. SAROLEA, untested	£4 5
5 h.p. Twin REX with Mills-Fulford Forecar, spot cash bargain	£11 10

Monster list on application. Cash offers considered.

CARS AND TRICARS.
Any reasonable exchange considered.
Room wanted.

8-10 h.p. two-cylinder FORD car	£32 10
10-12 h.p. two-cylinder BRUSH car	£39 10
1½ h.p. w.c BRADBURY tricar, M.O.V.	£35 0
1½ h.p. PHŒNIX trimo, magneto	£25 0

1,000 1008-9 Magneto Machines wanted for spot cash. Full trade value given.

MOTOR BICYCLES FOR SALE.

1908 Triumph (late), equal to new, Cowey speedometer Lucas 50s. lamp, spare belt and tyre (quite new), watch, three toolbags full tools, spare valves, plugs, etc., overalls, and 45s. coat, perfect in every way; lot cost over £60, will take £35; seen by appointment only.—E. G. Glenbourne, Ridgeway, Enfield, N.

1909 V.S., 5h.p., V.S. two speeds and free engine, magneto, spring forks, handle-bar control, adjustable pulley, 26 by 2¼ new Palmer cords, and tube on back, Peter-Union on front, both unpunctured, lamps, generator, watch, also rigid sidecar, enamelled French grey, to match machine, 4-note horn, Continental tyres, apron, beautiful combination, absolutely in perfect order, with spare; £45, or offer; owner bought car.—E. Monty, 8, Stephen St., Tottenham Court Rd., W.

SECTION X.

Scotland.

3½h.p. Rex, 1910 Amac, climb anything, very fast, £25; offers considered; buying racing machine.—46, Park Rd., Glasgow.

SCOTLAND'S Largest Motor Cycle Firm.—Rex V.S., Indian, Moto-Reve, Phelon and Moore, Zenith, Douglas, Roc, Griffon; we stock all these, and can supply any other make.—Alexander's Motor Exchange, Lothian Rd., Edinburgh.

SECTION XI.

Ireland and Isle of Man.

2¾h.p. Humber, perfect order, chain drive, studded tyre, accumulator ignition, also new Continental cover, 870 by 90, not unpacked; what offers?—William Greene, Enniscorthy.

TRICARS FOR SALE.

6h.p. Quadrant Carette, as new; cost £100; coach-built, wheel steering; £22.—20, Potternewton Lane, Leeds.

6h.p. Quadrant Carette, two speeds, tyres new, perfect condition; £20; photo; any trial.—Harris, Roydon, Essex.

6h.p. Twin, air-cooled, open frame, coach seats, three speeds, wheel steering; bargain, £17.—E. J. Gittins, Oswestry.

TRICAR, 8h.p., three-speed, reverse; £40, or exchange small car or cycle.—E. Porter, 54, St. John's Rd., Clapham Junction.

5h.p. Bradbury, water-cooled, two speeds, clutch, coach-built in good condition; £18.—Page, 74, East Hill, Dartford, Kent.

TRICAR, 4h.p., Humber, chain driven, free engine, handle starting, clutch, etc., perfect, condition as new; must sell; bargain, £17.—Sharpe, Mildenhall.

TRICAR, Fafnir, two speeds, free, chains, H.B. control, rubbered footboards, foot brakes, tyres very good; trial up 1 in 8; nearest to £14.—Seen at Nye's, Leather Lane.

BARGAIN.—Genuine Chater-Lea tricar, perfect, 4½ h.p., water-cooled, two-speed and free, handle starting, Palmer tyres; £18 10s., or offers.—Green, motorist, Derby St., Bolton.

4½h.p. Tricar, two speeds, wheel steering, water-cooled engine, in first-rate condition, plating, painting, and upholstering as new, new R.O.M. tyre on driving wheel.—Richards, 9, Fairview Rd., Cheltenham.

5h.p. Twin Rex Triette, Bosch magneto, two speeds, Roc clutch, handle starting, cane forecarriage, footboards, adjustable pulley, 1¼in. belt, Brooks saddle seat, specially built; £40.—W.G., 33, Meriden St., Coventry.

9h.p. Singer Tricar, Riley three-speed and reverse gearbox and engine, medal winner, London, Plymouth, and back, 1909, many alterations and improvements; cost £135, accept £60; Triumph part exchange. Phone, 7646 Wall.—Wood, 33, Cornhill, London.

7h.p. Wolfe, 2-cyl. Stevens water-cooled engine, three speeds, wheel steering, in magnificent condition throughout, ideal machine for winter riding, seats two in front, car tyres on all wheels, new R.O.M. combination non-skid, 700 by 85 back tyre, two spare covers and three tubes, two acetylene side lamps, all tools, etc., the machine has seen very little mileage and is particularly silent besides powerful and fast; any trial and expert examination; £37 10s., or good motor cycle part.—A. Browne, 43, Southbrook Rd., Lee, S.E.

SIDECARS AND FORECARS.

MONTGOMERY Sidecar, nearly new, beautifully upholstered green; £4.—M. Foy, Wokingham.

SIDECARS, £4 17s.; baskets, springs, fittings; trade supplied.—Middleton and Co., Watson St., Newington Green, London, N.

RIGID Sidecar, left, 26in. by 2½in. wheel, art cane body, upholstered green; £3 17s. 6d.—Lewis, 23, Arden Rd., Handsworth.

GOOD Sidecar, green upholstered, complete with cushion, apron, Dunlop, 26 by 2¼; accept quick sale £3.—Short, Spread Eagle Yard, Chesterfield.

LATEST 12 Guinea Sidecar, brand new, and built throughout with genuine Chater-Lea fittings, £6 8s.; wanted, Sunbeam cycle.—H. Bert, 9, Gaskell St., London, S.W.

MILLS-FULFORD Sidecar, condition as new, fit any machine; £3.—Macer, 20, Park St., Peterborough.

SIDECAR, new, Moseley type, specially upholstered; nearest £4; must sell.—G., 37, St. Quintin Av., W.

Stocktaking Bargains.

First Come, First Served.

To make room for new 1910 machines we offer the following clearance lines:

2½ h.p. Humber	£3 17 6
3 h.p. Rex	£4 17 6
3½ h.p. Excelsior	£4 17 6
3½ h.p. Dux	£4 17 6
2¾ h.p. Stevens	£4 5 0
2 h.p. Rex	£3 5 0

All guaranteed in running order and tested. **CARRIAGE FREE.** For 5/- extra we will deliver any of the above carriage free to your own door. Lamp, horn, and tools are included in the above.

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Clarendon	£9	3½ h.p. Humber	£9
3½ h.p. Rex	£9	3½ h.p. Rex, M.O.V.	£11
3½ Centaur, M.O.V.	£9	4 h.p. King	£9

6 ONLY.

BRAND NEW 1909

5½ h.p. O.T.A.V. VOITURETTES, complete with hood, lamps, tools, and spares.

£60 each. Magneto ignition £5 extra.

CASH, CREDIT, OR EXCHANGE.

1910 3½ h.p. REX, new, offers wanted	
1909 3½ h.p. REX, R.O.M. tyres	£30 0
1909 3½ h.p. HUMBER, two-speed model	£35 0
1910 3½ h.p. Twin PREMIER	50 Gns.
1909 6 h.p. Twin REX, quite new	£36 0
6 h.p. Twin REX, Bosch magneto, very smart	£20 0
1908 N.S.U. Lightweight, magneto	£17 0
3½ h.p. 1908 TRIUMPH, magneto ignition	£29 0
One ditto, fitted Roc two-speed gear	£35 0
1908 6 h.p. RCC, two-speed and clutch	£30 0
5 h.p. Twin N.S.U., magneto, very low	£21 0
1908 REX DE LUXE, clutch, etc.	£28 0
1908 Twin REX, magneto, very low	£25 0
3½ VINDEC, magneto, Nala two speeds	£19 0
1908 F.N. Lightweight, Bosch magneto	£17 0
3½ h.p. GRITZNER, 1908, magneto ignition	£17 0
1908 Magneto REX, fine condition	£18 0
5½ h.p. TWIN REX, speciality	£16 10
3½ h.p. REX, M.O.V., spray	£10 10
3½ h.p. 1907 REX, lovely goer	£15 15
3½ h.p. low REX, H.B. control, M.O.V.	£11 0
6 h.p. Twin REX, and sidecar	£20 0
5½ h.p. REXETTE, two speeds, fine machine	£24 0

FARRAR'S HALIFAX SIDECARS

£4 17s. 6d. complete with best tyres. Guaranteed 12 months. An ideal winter attachment, quite rigid. Good, stylish, and comfortable. No sideslip. Beautifully sprung on double C spring. Approval anywhere. Send for descriptive circular. Don't buy till you have seen ours.

ODD BARGAINS.

Forecar attachment, 26in. wheels	£4 0
2½ h.p. Monarque engine	35/-
Montgomery sidecar	£3 15
Brown and Barlow 1910 Carburetters, H.B. control	28/-
Amac Carburetters, H.B. control	19/6

Old carburetter accepted in part payment.

Premier High-tension Magneto, new	59/6
Bosch ditto, ditto, twin-cylinder, new	£3 10
Motor cycle frame, complete with wheels, tyres, and tank, very smart	49/-

Get my Price List. Pounds saved.

High-class Machines Wanted. Cash Waiting.

E. FARRAR,

Albion Works, Square Rd., HALIFAX.

Telephone 919.

SIDECARS AND FORECARS.

OUR Sidecars Talk. — New, with Michelin tyre (not new clearance), £5 5s.; perfectly satisfactory; one second-hand, £3.—128, High Rd., Tottenham. 1982, Tottenham.

ABINGDON Forecar Attachment, complete, foot brakes, 26 by 2¼ Dreadnoughts, Rothschild's aluminium body, upholstered maroon, run three months; £8; take castor sidecar part.—157, Filbert St., Leicester.

SIDECARS, best value in England. Fit all motor cycles; prices £4 15s. and £5 10s., fitting free; second-hands from £3 15s.; send for list from actual maker; established 1882.—C. A. Edgar, 123, Holloway Rd., London, N.

J. DAVIS, Automobile Engineer, Barnsbury Grove, N., begs to inform readers that he is the inventor and sole builder of the protected double-seated sidecar, illustrated recently in *The Motor Cycle*. This sidecar, with tiller steering, is the last word in comfortable motor cycling. Particulars and prices on application.

QUADCARS.

2 3h.p. Royal Enfield Quad, De Dion engine, Longuemare carburetter, coach-built front seat, in good order; £8 10s.—D. Jones, 73, Calverle Rd., Tunbridge Wells.

8h.p. Phœnix Quadcar, twin, water-cooled Fafnir, two speeds and reverse, splendid condition; £37 10s.—128, High Rd., Tottenham.

ARIEL Quad, two speeds, in splendid condition, Amac carburetter, H.B. control, car tyres, reliable; trial; £25.—Samson, 77, Upper Clapton Rd., N.E.

CARS FOR SALE.

PALMER.—16-20h.p. Motel Landaulet, open or closed body, side entrance, grand car; £100.

PALMER.—15-20h.p. Mors, closed body, pressed steel frame, fine hire car; bargain, £100.

PALMER.—24h.p. F.I.A.T. Burlington body, hood, screen, side curtains, full equipment; £175.

PALMER.—16-20h.p. Corre tonneau, hood, screen, head lamp, full equipment, spare tyre; £75.

PALMER.—12-16h.p. Aries, tonneau, genuine Aster engine, fast, reliable, and light car; £75.

PALMER.—16-24h.p. De Dietrich, side entrance car, hood, screen, magneto ignition; any trial; £75.

PALMER.—15h.p. Darracq, 5-seater, hood, screen, push pedals, tyres like new, perfect; £95.

PALMER.—15-20h.p. Panhard Chassis, with lorry body, 4-cyl., good running order; £55.

PALMER.—12-14h.p. Humber, tonneau, Moseley perfect tyres, very smart car; £65.

PALMER.—16-22h.p. Gladiator, side entrance, long chassis, disc clutch, roomy body; £125.

PALMER.—9h.p. Jackson, 2-seater, bucket body, general condition like new; £85.

PALMER.—12h.p. M.M.C., tonneau, 2-cyl., good running order; clearance price, £35.

PALMER.—24h.p. Mass, 2-seater, racer, electric lamps, steel chassis; £150.

PALMER.—16-24h.p. De Dietrich Chassis, late type, M.O.V., pressed steel frame; bargain, £85.

PALMER.—In stock at Tooting, one monoplane, 30ft. span, ready to receive engine; £75.

PALMER.—All above seen at L. N. Palmer's, 9a, Trevelyan Rd., Tooting. Garage one minute Merton Rd. tram terminus, Tooting. 'Phone, 208, Streatham. Photos, details. Easy terms. Exchanges.

ECLIPSE.—14-16h.p. Darracq, the 1910 speciality; immediate delivery; 225 guineas; old car part payment.

ECLIPSE.—14h.p. Star, 4-cyl., M.O.V., side entrance, excellent order; £85.

ECLIPSE.—14h.p. Forman, 4-cyl., M.O.V., side entrance, new condition; bargain, £105.

ECLIPSE.—14h.p. Pritchett and Gold, 4-cyl., steel frame, hood, excellent order; £72 10s.

ECLIPSE.—12h.p. J.P., 2-cyl., long chassis, side entrance, hood, perfect order; £80.

ECLIPSE.—9-11h.p. Clement, 2-cyl., M.O.V., tonneau, a thoroughly reliable car; bargain, £55.

ECLIPSE.—10-12h.p. Gnome landaulet, four seats, splendid order; £87 10s.

ECLIPSE.—6h.p. Siddeley, 2-seater, steel frame, reliable and good; £42.

ECLIPSE.—6h.p. Swift-De Dion, 2-seater, hood, perfect order; £38.

ECLIPSE.—6h.p. Vauxhall, 2-seater, three speeds, very good order; £14 10s.

ECLIPSE.—8h.p. Mayfair Dogcart, 2-cyl., good order; £21.

ECLIPSE.—10-12h.p. Star box delivery van, very good order; £60.

ECLIPSE.—8h.p. De Dion, genuine, two speeds, tonneau, in pink of condition; £72 10s.

ECLIPSE.—9h.p. Rex, tonneau, good order; £18.—Eclipse Engineering and Motor Co., 255, Earlsfield Rd., Wandsworth. 'Phone, 1135 Putney.

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3½ h.p. N.S.U., magneto, good tyres	£18 0
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ANTOINE, 4 h.p., magneto	£18 0
3½ h.p. QUADRANT, a gem	£17 10
3½ h.p. ARIEL, M.O.V., 26in. wheels	£15 15
REX, 3½, 1906, spring forks, M.O.V.	£14 10
ALLDAYS, 2½, 26in. wheels, spring forks	£11 0

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3 h.p. HUMBER, spray, clutch	£7 10
2 h.p. HUMBER, good value	£8 10
TRIUMPH, 2 h.p. Minerva engine, spray	£9 0
KERRY, long bars, low seat	£9 10
QUADRANT, 2 h.p., low, 26in. wheels	£8 10
REX, 3 h.p., long bars, dropped seat	£7 10
RALEIGH, 2 h.p., vertical	£7 5
REX, 3 h.p., good value, vertical engine	£5 19
1½ h.p. MINERVA, splendid value	£5 16
TRIUMPH-MINERVA, good order	£5 19

"BIRDLIP" BEATERS.

1909 Twin REX DE LUXE, NEW	£51 0
1909 3½ h.p. REX Speed King	£37 10
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5½ h.p. Twin REX, spring forks	£16 16
7-8 h.p. MINERVA, 1908, suit sidecar	£27 10
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Quart Tins, 1/8 each.

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10-12h.p. Minerva, 2-cyl., fast, useful 2-seater, hood, and screen, large detachable box at rear; £37 10s.—Below.

9 h.p. De Dion-Speedwell, very latest type of this well-known firm. 2-seater, hood and screen, very powerful, handsome car; £68.—Below.

10-12h.p. Peugeot, 6-seater, canopy and screen, dual ignition, exceptional condition; £55, or reasonable offer.—Below.

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5½ h.p. Pieper Car, 2-seater, belt drive, fast and comfortable; trial; £15.—Stimpson, Wellesbourne, Warwicksnire.

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6 h.p. Starling Car, bought new, driven only by present owner, very little used, suit doctor; any trial here; lowest, £45, bargain.—King, Alfreton.

6 h.p. De Dion-Hurtu Car, three speeds, in good condition; exchange for powerful twin and sidecar; sell £18.—Jaurs, 47, Highbridge St., Waltham Abbey.

10-12h.p. Wolseley Car, 2-cyl. engine, tonneau body, canopy, side curtains, screen, lamps, etc., splendid order; £33.—Claude, 16, Avenue Crescent, Acton, W.

5 h.p. Vauxhall Car, seats two, water-cooled, two speeds, etc., good condition, take good motor cycle exchange; room wanted.—Blackmore, Essex Bridge, Exeter.

10-12h.p. Pick, three and reverse, new tyres, 870 by 90, two cylinders, seats five; take twin cycle part, or, sell £30 cash; just the car for election purposes.—Hewlett, Upton-on-Severn.

NEW Orleans, splendid 8-11h.p. 2-cyl. car, three speeds and reverse, very powerful and fast, excellent order throughout; £35, well worth £60, bargain; good motor cycle part payment.—28, Woodbridge Rd., Ipswich.

9 h.p. Darracq Car, detachable tonneau body, three speeds and reverse, fast, and reliable, in splendid condition throughout; a genuine bargain, £40; good motor bicycle taken in part.—1, Walsingham Gardens, South Ealing, W.

8 h.p. De Dion, 2-seater, three speeds, hood, lamps, Stepney wheel, etc., capital condition, exceptionally reliable car; £115, or allow good price for Triumph motor cycle (no other) in part payment.—Heybourn, Motors, Maidenhead.

6½ h.p. Genuine De Dion-Regal, modern 2-seater, small cab, cardan, artillerys, Dunlops, two speeds, reverse, buckets, screen, etc., splendid condition, £36 10s.; also latest model Rexette tricar, side lever change speeds, torpedo rear, separate gear box, luxuriously fitted, cost £110, £32; no dealers.—D., 59, Minet Av., Willesden.

6 h.p. Chater-Lea Carette, in thoroughly sound condition and good going order, engine, magneto, and all wearing parts lately overhauled, complete with double twist horn and tail lamp, two complete inlet and exhaust valves, two Whittle belts, and numerous spares, tyres in good order, rubber studded Excelsior tread, and 650 by 65 Dunlops, excellent hill-climber, and quite free from sideslip; £50.—Nelson, Holme House, Holme-next-the-Sea, King's Lynn.

10-12h.p. Minerva 2-cyl. Handsome 2-seated Car, side doors, sloping back, containing large toolbox, County wind screen, three speeds and reverse, automatic lubrication to engine and all parts of machine, tyres practically new, non-skids on back, car is enamelled dark green, and in perfect condition throughout, large brass acetylene headlight, two side paraffin and tail lamps, spare tyre, tools, etc.; £70; would accept good motor cycle part payment; open to expert examination; trial by appointment.—G. Stanley, 43, Southbrook Rd., Lee, S.E.

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ENGINES.—Roc, 4h.p., single-cyl., new 1910 type; early deliveries.—A. W. Wall, Ltd., Birmingham.

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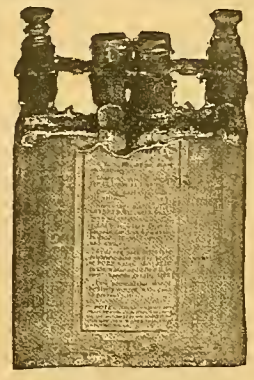

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WHAT Offer?—3½h.p. M.O.V. White and Poppe engine, also 1¾h.p. Minerva and a 1½h.p. steam engine and boiler, also a Rex surface carburetter and fittings.—A. Moyse, Kessingland.

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JEBRON. Registered 291-289, vastly superior to platinum, cures misfiring; best contacts for blades, screws, rockers, magnetos, coils. Jebron has no equal.

JEBRON, 2s. 6d. each rivet fitted; Jebron trimmers 9d.; Jebron screws fit Bosch magnetos DA2, DAV contact breakers 5a, 5b, 5c, 5s. 6d. pair; old screws Jebronised, 2s. 6d. each. Over 10,000 fitted. Try it.

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500 Fuller's Midget Plain Coils, 10s. 6d.; 200 Fuller Midget trembler coils, 17s. 6d.; liberal allowance for old coil in part payment.—Booth's Motories, Halifax.

IGNITION Coils and Magnetos Repaired, any make; accumulators repaired and charged; best workmanship, moderate charges. Tel.: 453.—Glover Bros., Electricians, Coventry.

DE BEERS Patent Cycle Petrol Economisers have proved themselves successful beyond doubt; testimonials received state they reduce petrol consumption, give power, flexibility, save pedalling up hills. Special price for one month only to enable cyclists to try it, 5s. 6d.—Petrol Economisers, Ltd., 92, Avenue Chambers, Southampton Row, London.

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RETREADING with rubber studs, 12s. 6d.; new studded covers, 21s.; why pay more?—Fox, Suffolk St., Birmingham.

28 by 2¼ Dunlop wired covers, new, 11s. 6d.; 24 by 2¼ new Clipper covers, 13s. 6d.—Booth's Motories, Halifax.

LIMITED Quantity Dunlop and Clincher tyres, 17s. 6d. each; Clincher tubes, 4s. 11d.; all new.—Booth's Motories, Halifax.

5000 Old Covers and Tubes wanted in part payment for new Continentals, R.O.M., Palmers, Shamrocks; gratifying allowances; right place for tyres.—Booth's Motories, Halifax.

MAGNETO Covers, made of special high-class rubber, warranted not to tear; wet, mud, and oil resisting; 2s. 6d. each; post 1d.—Below.

SURRIDGE'S Special Heavy Inner Tubes, made of best red rubber, will stand speed and the roughest of handling.—Below.

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SURRIDGE'S Tubes are the result of a practical hard rider of all weathers; the absolutely best obtainable.

SURRIDGE'S Tubes, 26in. by 2¼in., 13s.; 26in. by 2½in., 13s. 6d.; money returned with pleasure if not approved; best quality.—58, George St., Camberwell, London.

A PUBLIC LETTER OF APOLOGY.

Jan. 10th, 1910.

Lancashire Motor Exchange,
Euston Road,
Morecambe.

Dear Reader,

I feel called upon to publicly apologize for delay in answering, and at the same time thank the very kind people who have written me this Xmas wishing me success in the coming year, and stating that I am filling a long felt want, also making remarks of a very personal character against the trade as carried on by some dealers. With whom, by the by, I have no connections.

Then again, I wish to publicly thank the riders who competed for the Lincoln Elk, and beg to state that I hope by now to have got off the much delayed presents. This, by the by, has been caused by the extra rush in getting off the Xmas orders for Moto-Reves and other machines, also by the heavy consignments of new 1910 models I have received. I must not forget the extra heavy Mail Bag each post has brought, which in itself is an enormous strain on my clerical staff. However, in the coming year I shall be able to deal more effectively with the correspondence, as I have engaged another first-class typewriter and shorthand clerk. Before closing, let me press upon you the fact that I am at all times pleased to hear from you; even if you have written once and for any reason our deal fell through, write again! I will repeat what one secretary of a cycling club wrote: Members of our club are seeking a firm who are prepared to deal square and who can supply a reliable article at a reasonable price, and are not buyers of the cheap rubbish on the market. I hope I shall fill that want, as cheap rubbish I will not touch. I will wish you all a prosperous New Year, and hope your kind wishes to me will come true. Don't forget new Bargain List, also Moto-Reve specifications now ready. See my advts. in "Motor Cycling."

Yours respectfully,
C. H. HITCHEN.

HITCHEN'S

Lancashire Motor Exchange,
Euston Rd., MORECAMBE.

Telephone 112. Telegrams: "Motor, Morecambe."

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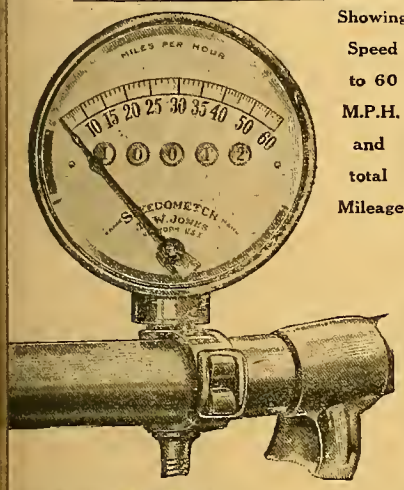

Showing Speed to 60 M.P.H. and total Mileage.

With Trip Mileage in addition .. .. .. 4 guineas,
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THE NEW 'VEEDER' MOTOR CYCLE TRIP CYCLOMETER.

Specially designed.

Price 2/6

Note—Large and substantial case construction.

Stronger mechanism, larger and stronger star wheel, cranked adjustable bracket to suit clearance, etc.

Write for literature.

MARKT & CO. (London), Ltd.,
6, City Road, Finsbury,
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TYRES.

BASTONE.—New rubber studded motor cycle covers, 26 by 2, wired edge, 17s. 6d.; beaded edge, 26 by 2, 19s. 6d.; 26 by 2¼, 20s.; 26 by 2½, 21s.; 28 by 2, 20s. 6d.

BASTONE.—New motor cycle covers, ribbed pattern, wired edge, 26 by 2, 2¼, 11s. 6d.; 26 by 2½, 28 by 2, 2¼, 12s. 6d.; beaded edge, 2s. extra.

BASTONE.—Genuine Clincher A Won motor cycle covers, 28 by 2½, B.E. only; 15s. each.

BASTONE.—Tubes, with valves, best quality, and guaranteed, 26 by 2, 6s. 9d.; 26 by 2¼, 7s.; 26 by 2½, 7s. 6d.; 28 by 2, 7s.; approval against cash; subject to being unsold.—Bastone, 215 and 217, Pentonville Rd., King's Cross, London, N.

STOCKTAKING Clearance Bargains.—All 26 by 2¼. Three rubber studded Clinchers, new, 28s. each; two Matadors, heavy, ribbed (car shape), new, 20s. each; three rubber studded Avons, new, 21s. each; four ribbed tread covers, new, 16s. 6d. each; 24 guaranteed heavy tubes, new, 4s. 6d. each; approval; subject being unsold; don't wait.—Fox, Suffolk St., Birmingham. Also many others in different sizes.

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PREMIER Motor Company, Limited, for all repairs.

PREMIER Motor Company, Limited, for Antoine parts.—Aston Rd., Birmingham.

ANTOINE Cylinders, pistons, etc.; prompt delivery.—Premier Motor Company, Limited, Aston Rd., Birmingham.

COMPRESSION.—Cylinders ground and new pistons fitted; 24s.; oldest engines restored to highest vitality.—Premier Motor Company, Limited, Birmingham.

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COMPRESSION Restored, cylinders ground to .001in. guaranteed; pistons fitted.—Acer, Ltd.

ENGINE Repairs in all branches.—Overhauling, rebushing, replacements.—Acer, Ltd.

RAPID Delivery and reasonable charges. Lists free.—Acer, Ltd.

TWISTED or Bent Frames and Forks, etc., should be sent to Middleton's, Watson St., Newington Green, London, N.

RELIABLE Repairs.—Cylinders re-bored, pistons fitted, step-cut rings, to 80mm., 16s.; rings 6d., pistons 7s. 6d.—Gas Engine and Motor Works, Forest Hill, S.E.

REPAIRS, engine or frame, new parts to pattern or drawing; cylinders ground, new pistons; low prices, prompt attention; oldest firm in this line.—Baines Bros., Gainsborough.

ACCUMULATORS. Magnetos, and Coils repaired; remagnetising, rewinding, replatinising; repairs to trade; catalogue.—The High Tension Co., Brownlow Wks., 1a, Guilford St., London. 1409 Holborn.

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MOTOR Cyclists obtain best possible results here. We are compression specialists. Cylinders re-bored, ground dead smooth, and new pistons fitted from 12s. 6d.; despatched in three days.—Tennant Engineering Co., 120, Pershore St., Birmingham.

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EXCHANGE Quadrant motor cycle for push and cash.—Stewart, Parnell St., Wexford.

EXCHANGE good second-hand beaded Palmer, 26 by 2½, for 26 by 2.—69, Gibbon Rd., Kingston.

EXCHANGE Billiard-dining Table and two-speed cycle for motor cycle.—28, Grove Lane, Stamford Hill.

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MODERN Motor Cycle; exchange genuine Broadwood horizontal grand rosewood piano, splendid instrument; sell £30, lowest.—Bert 14, Bushey Rd., Harlington, Middlesex.

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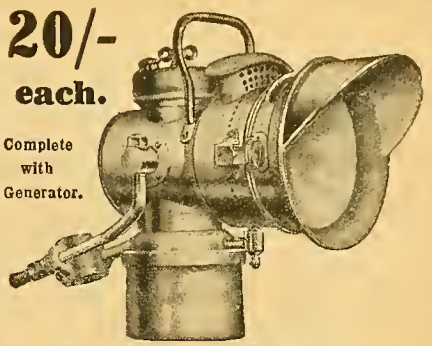

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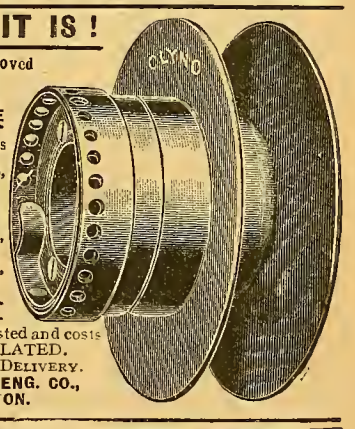

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NEW Bell Organ, listed at 26 guineas, would exchange for decent motor cycle, magneto preferred, low, etc.—Riseley, Harrold, Beds.

EXCHANGE new Oakleigh sidecar, 26 by 2½ wheel, left side, with cash, for Mills-Fulford, Miller, or similar sidecar.—Grimwade, Bank, Fakenham, Norfolk.

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EXCHANGE 1908 magneto lightweight Rex, nice condition, and £16 cash for 1909 Triumph, or Phelon and Moore, or sell £16 10s.—T. Rankin, Badenheath, Condorrat, near Glasgow.

EXCHANGE unridden two-speed Premier cycle, Edison standard phonograph, with 42in. brass horn, 160 records, 4 cell Fuller's battery, for powerful twin, tricar, or small car.—Tovey, Warrington Rd., Whiston, Lancashire.

EXCHANGE, 3½h.p. Kerry, 1909 machine, in grand condition, 26in. wheels, handle starting, handlebar control, carburetter, and ignition, long handle-bars, low saddle position, long footboards, toolbag, horn, stand, spare belt and valves, very fast, fine sidecar machine, for lower power and cash adjustment, or sell £14.—12, Market Sq., Horsham, Sussex.

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SITUATIONS WANTED.

GENTLEMAN, young, well-known expert, successful rider, open for engagement, would manage London or other depot, thoroughly experienced motor cycle and car trade, keen business ability.—Box No. 3,825, *The Motor Cycle* Offices, Coventry.

SITUATIONS VACANT.

PREMIUM Pupil in motor cycle exchange, under expert repairer, every make of machine, finest experience; part premium allowed in wages; only workers need apply.—Hitchens, Lancashire Motor Exchange, Euston Rd., Morecambe.

WANTED.

"MOTOR Cycle," Nos. 1 to 52, bound or loose.—19, Lessar Av., Clapham, London.

TRICAR wanted, in good running order; cheap for cash.—S., 13, Hemberton Rd., Clapham, S.W.

PARSONS Non-skid Chain, to fit 710 by 90 wire wheel.—Engineer, 65, Hilden St., Bolton.

ENCLOSED, or other cooling fan, also air-cooled twin engine of good make.—R. Crawshay, Sevenoaks.

WANTED, Minerva, 3½h.p., 1909, must be in good order.—Bernard Gilbert, Billinghay, Lincoln.

TRICAR wanted, seat three, 8-10h.p., first-class condition.—Ritchie, 4, Firpark St., Shettleston, Glasgow.

WANTED, cycles, tricars, cars, etc.; cheap for cash.—112, Hamlet Court Rd., Westcliff-on-Sea, Essex.

CHATER No. 6 and No. 8 lightweight frames, cheap for cash, wanted.—Knight, Maypole House, Bexley.

3½h.p. Rex, 1908-9, or similar make; lowest price.—Write, Turner, 72, George St., Baker St., London.

WANTED, a motor bicycle, with little cash, for 4-seated car, in good order.—Gilbert Spicer, Leamington.

EXCHANGES for Moto-Reves wanted, Triumphs, sidecar twins, magneto.—Hitchen, Euston Rd., Morecambe.

WICKER Sidecar, to fit Phelon-Moore, castor wheel, 26 by 2¼ beaded tyre.—Crow, Nottingham Rd., Croydon.

BACK Numbers of "The Motor Cycle" required, Nos. 3, 4, 10, 14, 20, 35.—R., *The Motor Cycle* Offices, Coventry.

WANTED, Lightweight, for cash, up to £15; full particulars; photo.—Leigh, 13, Post Office Av., Southport.

WANTED, 1909 Phelon and Moore or two-speed cycle, with or without sidecar; will receive expert examination.—C. H. Dalby, 39, Burlington St., Manchester.

WANTED, Douglas; will give in part Raglan Majestic, three-speed, oil bath, nearly new, and 12 bore centre fire gun and cash to value.—J. White, The Warren, Guildford.

1910

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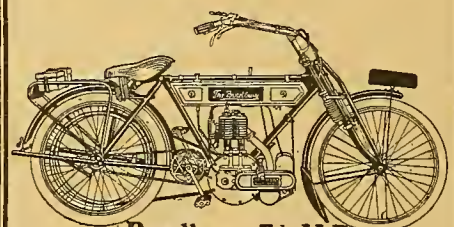
BRADBURY



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WANTED.

WANTED, Phelon and Moore, 1909 motor bicycle cheap for cash.—Flintoff, 253, Manchester R Bradford.

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MONTGOMERY Sidecar, 28in. wheel; cheap for ca —Nye's, 69, Leather Lane, London. Telepho 6299 Holborn.

WANTED, Xl'all spring forks, 4h.p. Antoine or ot engine, gramophone, high-class piano.—Boot Motories, Halifax.

£1,000 waiting for magneto motor cycles; good pri given; wanted, several good engines.—Boot Motories, Halifax.

SMART Cane Seat, for two passengers, also twin gine and magneto.—68, Seymour Grove, Old Tr ford, Manchester.

SMALL Light Tricar or forecarriage, reliable; re London only.—Wilkins Bros., 191e, Uxbridge R Shepherd's Bush.

MILLS-FULFORD Castor Wheel Sidecar, to fit T umph, must be good condition; cheap.—Kit Carfax, Horsham.

TRIUMPH, two speeds, and castor wheel sidecar; change 1908 Triumph and £10.—Adams, chem Cape, Smethwick.

9h.p. Water-cooled V Twin Engine, J.A.P. prefer about £12.—Particulars to M., 5, Honeybrook R Clapham Park, S.W.

WANTED, 1909 Triumph, all accessories, cheap cash.—Full particuars to No. 3,824, *The Mo Cycle* Offices, Coventry.

ENGINE, twin, a.c., complete with plates, for Cha No. 6, J.A.P. or Peugeot preferred.—West "Imperial," Lyndhurst.

WANTED, 1909 Millford sidecar, no rubbish.—F ticulars and type and lowest cash price, W. Ja 210, Martin St., Leicester.

WANTED, Air-cooled Cyl., about 2¾in. bore, a matic inlet; lowest for cash.—E. J. Atkin Reta Ledge, Padgate, Warrington.

GOOD motor cycle, with magneto, Triumph preferre Fullest particulars, with lowest price, to J Webber, Craufurdrise, Maidenhead.

WANTED, a two-speed gear, in good order, to single cylinder motor cycle engine; cheap; rubbish.—3,804, *The Motor Cycle* Offices, Coventry.

WANTED, known make motor cycle, 3 to 3½h.p., m neto, out of order not objected to; cheap cash.—F.T., 14, Harriet Mews, Sloan St., London, W.

MAGNETO Motosacoche, and other lightweights, exchanges re Moto-Reves and sidecar machin largest stock to select from.—Hitchen, Euston Rd., M cambe.

TRIUMPH, Humber, or Quadrant, good motor cy state lowest price, and full particulars as to etc.; no fancy prices.—By letter, L., 14, Boundary Wood Green.

WANTED, immediately, a new Wilkinson wh steering T.A.C. machine, latest pattern, lowest price for cash.—3,826, *The Motor Cycle* Offi 20, Tudor St., E.C.

WANTED, Bosch DA2 magneto, Xl'all spring fo 1in. Whittle belt, foot brake, in exchange Columbia sound magnifying graphophone, good as cost £16 16s.—40, Waterloo Rd., Hunslet, Leeds.

WE have a number of clients requiring second-h machines of all descriptions. If selling, pl send to us to be sold on commission, or bought for ca utmost value obtained; no sale, no charge.—R. M. P man and Bros., Motor Engineers, London Rd., Norb London.

WANTED.—All motor cyclists will be pleased De Beers patent cycle petrol economisers, wh have proved themselves successful beyond doubt; t monials received state they reduce petrol consumpt give power, flexibility, save pedalling up hills. Spe price for one month only to enable cyclists to try 5s. 6d.—Petrol Economisers, Ltd., 92, Avenue Chamb Southampton Row, London.

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HOLDTITE Patches, the patch that will not c off, no matter heat or speed of tyre.

HOLDTITE Solution, the most reliable; tubes, 9d.; 4lb. tins, 1s.

SURRIDGE, the motorist friend in need, 58, Ge St., Camberwell, London. Send for booklet fre

2¾h.p. De Dion Engine, Longuemare carburet silencer; £2 10s.—Below.

GENUINE Chater-Lea Tricar Frame, wheels, ty wing mudguards, footboards, brakes; £5.—F 13, Angus St., New Cross.

MOTOR Cycle Frames cut down; winter prices 6d.—Butterworth, 174, Stamford St., Stalybridge.

WHIPCORD Cycling Breeches, latest cut; 10s. write for patterns.—Booth, tailor, Longton, St

THE MOTOR CYCLE

Vol. 8. No. 356. Jan. 17th, 1910.

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FOUR PAGE SUPPLEMENT.

Club News. Current Chat.

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ADDRESS—20, TUDOR STREET, LONDON, E.C.

A MOTOR CYCLIST'S VIEWS FROM THE STATES.

MR. EARLE L. OVINGTON, a well-known American motor cyclist whose name is not unfamiliar to our readers, has lately been spending some time in Europe. On the occasion of a chat with him the other day he gave us a good deal of information about motor cycling in the United States. First of all, the conversation dealt with the amateur question. T. K. Hastings, it will be remembered, was made a professional last year by the Federation of American Motor Cyclists because in the 1908 Land's End to John-o'-Groat's trial he competed against English trade riders. This at first sounds strange, but it must be remembered that the American amateur definition is different from ours.

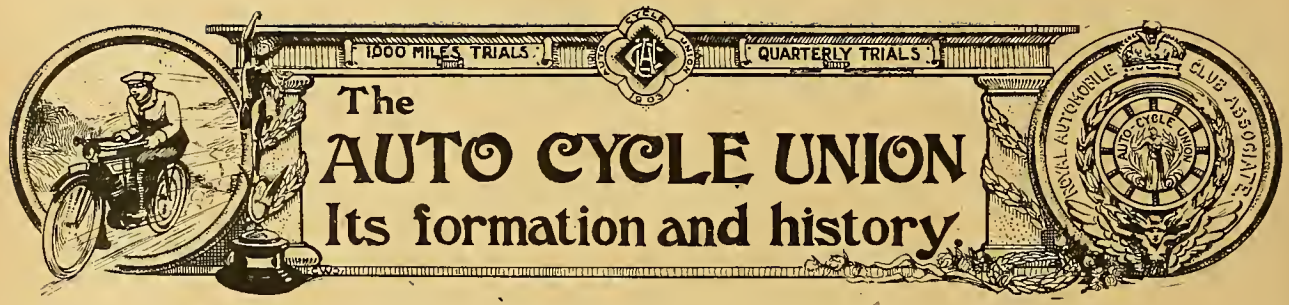
It must be understood, then, that the F.A.M. recognises three classes of riders: (1) The professional, who is employed exclusively in riding motor cycles for money or for the purpose of winning money. (2) The trade rider, a man not wholly occupied in motor cycling, though undoubtedly an expert exponent of the pastime, who may be occupied in another business, and yet receives machines or parts either free of charge or at reduced terms, or who has a machine loaned to him by a maker. (3) The amateur who rides purely for pleasure, and who receives no outside assistance from the trade in any shape or form.

These, then, are the three classes of riders recognised by the F.A.M., and very rigidly is the rule in which these classes occur observed. No man who transgresses the amateur rule either in the spirit or the letter is considered an amateur by any other sporting body. Mr. Ovington, who would dearly like to compete in our End-to-end trial, fears that by so doing he would be disqualified by the Amateur Athletic Union, and be prevented from taking part in competitions as an amateur were he to be proved otherwise by the F.A.M.

At present it is impossible to say whether the British governing body of motor cycling will take up the same attitude as the American one, but in the meantime it is hard that its restrictions prevent their countrymen from taking part in British competitions; in any case the difficulty does not seem to be an insuperable one. Surely at its next annual general meeting the F.A.M. could pass a rule rendering American competitors subservient to the motor cycle laws of the country in which they compete.

We next tackled Mr. Ovington on the question of American records being recognised in this country. He was certainly somewhat sore at the attitude the English motor cycling community takes up in this direction, as he assured us that in all cases the timing was most carefully carried out. On the Florida Beach, for instance, he positively refused to admit the possibility of error, as in this case the times were recorded electrically. However, he agreed that there should be a special committee to appoint official timekeepers provided with approved chronometers, which should periodically be tested by the Government.

Mr. Ovington is a very keen motor cyclist and a thorough sportsman, and he is most anxious that American motor cyclists should meet their English *confrères* on their own ground, and he has returned to the States with the object of doing his best to persuade the principal manufacturers to send a team to compete with our best riders at Brooklands.



The AUTO CYCLE UNION
Its formation and history.

IN 1903, when the number of motor cyclists was rapidly increasing, and there was every indication that the pastime of motor cycling would not only live but prosper, there was no ruling body to govern the sport. Early, however, in that year—in January, in fact—there was formed an Advisory Committee of the Automobile Club of Great Britain and Ireland (now the Royal Automobile Club), consisting of Mr. Roger W. Wallace, K.C., Messrs. M. G. Duncan, Basil H. Joy, J. Rennell, E. R. Shipton, C. A. Smith, Robert Todd, Mervyn O'Gorman, Dr. Whitehall Cooke, Charles Jarrott, and the Rev. Arundel Whatton. Soon afterwards, Mr. Arthur Candler, now the hon. secretary of the Motor Cycling Club, was elected a member. This committee then advised the Royal Automobile Club on any matter appertaining to motor cycling, but in April of the same year the committee founded the Auto Cycle Club, which took over the control of the pastime from the Automobile Club.

An Important Meeting.

In the first year of its existence the Club did excellent work. One of its first deeds was to put before the Government the status of the motor cycle, and for this purpose the Auto Cycle Club invited to a meeting representatives of the National Cyclists' Union and the Cyclists' Touring Club, with a view to making suggestions to the Local Government Board. The secretary, Mr. F. Straight, had several satisfactory interviews with the Local Government Board officials, who adopted practically the whole of the suggestions made, among which, we may mention, was one to provide motor cycles with specially small number plates. Another result of this interview was to fix the weight of a motor cycle for the purpose of registration at 3 cwts. unladen.

From time to time, the Inland Revenue tax has attracted the attention of the Club, and in the first year of its existence it fought a case which was of great importance. The Recorder at Bristol had dismissed a summons against a motor cyclist for not paying the 15s. Inland Revenue tax, holding that a motor cycle was not a carriage within the meaning of the Act. The Inland Revenue authorities appealed, and the matter was referred to the King's Bench. Though the Club, with the assistance of Mr. Robert Todd (chairman), engaged counsel to fight the case, it found, unfortunately, that, owing to the terms in which the magistrates had stated this particular case, it was impossible to proceed.

H.S.H. Prince Francis of Teck, K.C.V.O., D.S.O., the president.
(Photograph by W. S. Stuart, Richmond.)

Another important case fought by the A.C.C. was that of a motor cyclist summoned for riding a motor bicycle without exhibiting a rear light. Mr. Todd again took up the cudgels for the Club, and was successful in getting the case dismissed. Attempts were also made to mitigate the dangerous practice of tramway companies excessively watering their tracks.

Motor Cycle Racing.

Prior to the formation of the Auto Cycle Club motor cycle racing had not been organised, but on the formation of the Club, when the National Cyclists' Union had handed over the control of the sport to the Automobile Club and the Automobile Club had passed over the control to the Auto Cycle Club, the last named body undertook the registration of racing motor cyclists, and 280 certificates were issued during the Club's first year. Without these certificates it was impossible for a motor cyclist to compete in any open competition in England, and it is interesting to note that the certificate was, and is, recognised by the Irish Cyclists' Union and the Scottish Cyclists' Union, and, in consequence, any rider suspended by the Auto Cycle Union is ineligible to take part in any race held throughout Great Britain and Ireland.

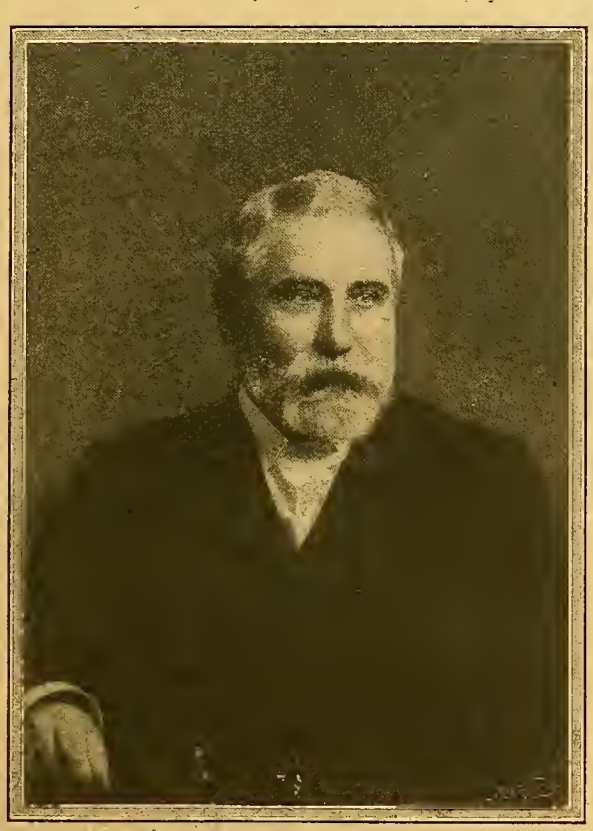
The Club also issued permits to various bodies to hold motor cycle races in different parts of the country,

the object of which was to see that these races were properly carried out, and that the performances made therein would be official.

The Gordon Bennett Race Week.

The first competitions to be carried out by the Club were races at Phœnix Park, Dublin, and Castlewellan, during the week in which the Gordon-Bennett Race was held in Ireland, and in addition a successful meeting was held at the Crystal Palace, when a race was held for *The Motor Cycle* Challenge Cup. This was won by J. F. Crundall, on a 2 h.p. 70 × 70 mm. Humber, and two other cups competed for were won by riders on machines with engines limited to 76 × 76 mm. The result of this meeting was that for all ordinary tracks the larger limit was established and for inferior grass tracks the smaller limit was imposed.

In 1903, also, the first 1,000 Miles Trial for motor cycles ever held in this country took place under the auspices of the Auto Cycle Club, starting from the Crystal Palace. Motor cycles were also first used for military purposes, when the Club was asked by Lieut.-Colonel Mayhew to obtain the services of a number of motor cyclists for the army manœuvres. In the same year, interesting papers were also instituted, and among these we may mention "Improvements in the Motor Cycle" by Mr. Mervyn O'Gorman, and "The Care of Accumulators" by Mr. D. Elyard Brown. Later in the year it was announced that the Club had instituted an affiliation scheme, by which motor cycle clubs throughout the country could have a voice in the control of the sport and assist in any movement for the benefit of the pastime.



Mr. Robert Todd, chairman and a vice-president.

In the next year of its existence, viz., 1904, the Club promoted a Side-slip Trial, in which various interesting devices were tested, and later on carried out a Hill-climbing Competition, followed in August by a most successful 1,000 Miles Trial. This year, instead of starting from a centre, the trial took the form of a tour.

The International Motor Cycle Cup Race.

At very short notice the Club sent a team of riders to represent England in the International Cup Race, held in France near Dourdan. France, Germany, Austria, and Denmark were represented. Unfortunately, owing to nails having been maliciously placed upon the course on one side of the road, the English competitors stood no chance, and as a result of the action taken by the Club, the Automobile Club of France offered five hundred francs for the discovery of the offenders. The Club held its first Consumption Trial in October, and later on in the season held the first Tricar Trial for machines designed to carry two passengers and fitted with a variable speed gear. The Club elected witnesses to give evidence before the Local Government Board as to the suggested speed limits in the City of London, and also at Kingston (Surrey), and in each case the proposition was successful, while through the Hon. J. Scott Montagu, now Lord Montagu, the Club approached the Chancellor of the Exchequer and urged the inclusion of a clause in the next Finance Bill excluding motor cycles from the category of taxable carriages.

An arrangement was also entered into with the Motor Union whereby the Auto Cycle Club was affiliated to the Motor Union on advantageous terms. At the end of 1904 the membership was nearly doubled, and on completion of the scheme several clubs became affiliated.

In the third year of its existence (1905) the A.C.U. entered into a new scheme with the Motor Union whereby all clubs affiliated to the former body were also affiliated to the Motor Union. In the same year the Club became affiliated to the Fédération Internationale des Clubs Moto Cyclistes, now defunct.

Race in the Isle of Man.

In connection with the International Cup Race, an Eliminating Trial was held in the Isle of Man, while the actual race was held in France. It is interesting to note that the British team was the only complete team to finish the course.

The affiliation scheme continued to prosper, and a further number of clubs joined.

A most successful hill-climb was carried out in the grounds of the late Sir F. S. Phillipson Stow, near Haslemere, and in August the Six Days Trial was held in the form of a tour through the West and South of England. It is interesting to note that in the 1904 trial forty-five machines started and nineteen finished, and in the following year thirty-one machines started and twenty-two finished. Two Members' Penalty Runs were promoted during the active riding season, one in May and the other in September, the latter being exceedingly well supported. A Consumption Trial was also held.

The last reliability trial of the year was a Tricar Trial, a most successful affair, which took place over the Uxbridge-Banbury-Uxbridge route, now adopted for the Quarterly Trials. During this year arrangements were made with the French Customs authorities whereby members of the Club could, on presentation

History of the A.C.U.—

Mr. H. P. E. Harding.

of their membership ticket, take their machines into France without payment of duty.

The Land's End to John-o'-Groat's Trial.

In 1906 the Club continued to prosper, and many private members and members of affiliated clubs took advantage of the numerous touring facilities offered, while clubs to the number of twenty-five helped to swell its ranks, and its total membership reached 1,620. The first great trial from Land's End to John-o'-Groat's took place this year, and for it an entry of ninety-three was received; seventy started, and thirty-six competitors reached John-o'-Groat's. The Penalty Run proved to be very successful and intensely popular.

This year the Eliminating Trials for the International Cup Race were held, by kind permission of Lord Derby, on his estate at Knowsley Park, Lancashire, and in the actual race, which was held in Austria, C. R. Collier, the English rider, finished third. The race, however, was not all that could be desired, since the Austrian competitors had men riding round the course carrying spare tyres and parts. As this was a breach of the rules, a protest was lodged by the English delegates on the conclusion of the race, and this was the last occasion on which the International Cup Race was run.

Birdlip Hill-climbing Competition.

A most successful hill-climb was held in September up the well-known acclivity known as Birdlip Hill, seventy-five entries being received. The last competition of the year was a combined Passenger and Consumption Trial, held in conjunction with the Quarterly Trial in October, the first of these popular events being run in April, 1906. In this year a new Club badge was designed to fix to the handle-bars of a machine, and it was decided, in order to bring provincial members in closer contact with headquarters, that it would be useful to appoint honorary representatives in each district. A permit was granted to the Brooklands Automobile Racing Club to enable it to promote motor cycle events.

In February, 1907, the Club held a series of Silencer Trials at the Clément-Talbot Works, and some interesting results were obtained. In May in that year the first Tourist Trophy Race under a fuel consumption limit was held in the Isle of Man for a handsome trophy presented by the Marquis de Mouzilly St. Mars. A Penalty Run was also held in provincial centres for affiliated clubs, but in most centres it had to be abandoned through lack of support, and finally it was decided to discontinue it. A council meeting was held at Lincoln in September, at which it was decided to recommend that the Auto Cycle Club should itself do the work then carried out by the Motor Union. At the end of this year the working arrangement entered into with the Motor Union in January, 1905, came to an end, and at the beginning of the following year the Motor Union seceded from the Royal Automobile Club. It was at the meeting at Lincoln that it was decided to call the Auto Cycle Club in future the Auto Cycle Union.

Mr. J. W. G. Brooker.

Mr. H. Gillard Cove.

History of the A.C.U.—

The question of again appealing to the Chancellor of the Exchequer for reduction in the Inland Revenue tax for motor cyclists was the subject of some correspondence with Lord Montagu of Beaulieu, who, however, did not hold out much hope of success. However, a deputation of representatives of the Royal Automobile Club, among whom was Mr. Robert Todd representing the Auto Cycle Union, consulted with the Chancellor of the Exchequer, with the result that the tax on motor bicycles was kept down to the lowest possible limit.

Mr. F. Straight, secretary of the A.C.U. since its inception.

The Lightweight Question.

During the history of the A.C.U., Mr. A. J. Wilson consistently endeavoured to improve the lightweight motor bicycle by presenting medals, etc., for competition, and in 1907 this type of machine had so far justified itself that several further prizes were offered for its development. In 1907 the Six Days' Trial took the form of a tour. In the same year, the Automobile Club of Great Britain and Ireland, by a special warrant from the King, became the Royal Automobile Club, and was fortunate in obtaining as its chairman H.S.H. Prince Francis of Teck, K.C.V.O., D.S.O., and the Auto Cycle Union was sufficiently lucky to secure his services as its president. No less than forty clubs became affiliated, and the total membership reached 2,231. In 1908 the Land's End to John-o'-Groat's run was held for the second time; fifty-eight entrants started and forty-eight reached John-o'-Groat's within maximum time; while in May the Annual Hill-climb was held at Sutton Bank, so as to give north-country riders a chance of competing. The Tourist Trophy Race was held in September, and the speed was limited as before by petrol consumption. Arrangements were made whereby members of the Auto Cycle Union could insure their machines at a very low premium. Several attempts were made to reduce toll charges in various parts of the country. The Touring and Legal Departments were also largely patronised by members. During this year the committee adopted a scheme for the establishment of local centres of the Union throughout the country.

Mr. A. George Reynolds, an energetic worker.

Military Motor Cyclists.

At the council meeting preceding the annual dinner it was proposed that the Union should form a scheme for placing a number of motor cyclists at the disposal of the nation in the event of a national danger, which ultimately resulted in the founding of the Auto Cycle Legion.

During the year which has just past, the A.C.U. continued its useful work, and when the Budget proposals were made public it was represented by Mr. Todd, who headed a deputation to the Chancellor of the Exchequer. The 1,000 Miles Trial was held, starting from a centre, Shrewsbury being chosen, from which daily runs were made into Wales and the country round Shrewsbury. The trial was of a very severe nature, but the machines entered behaved in a highly satisfactory manner.

The centre scheme prospered, and various centres were established and maintained in working order. The Tourist Trophy Race was held in the Isle of Man in September, and for the first time the petrol limit was abandoned and machines competed on cubical capacity alone.

On the occasion of the manœuvres the Army Council requested the Auto Cycle Legion to furnish a detachment of motor cyclists, who carried out their work so efficiently that a special letter of thanks was afterwards received from Sir Edward Ward.

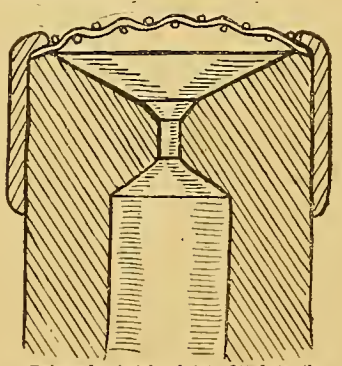
Who's Who in the A.C.U.

The photographs which are used to illustrate this article show a few of the moving spirits of the A.C.U., Prince Francis of Teck, the president, who is known all over the kingdom for the excellent way in which he has worked for the automobile movement; Mr. Robert Todd, the chairman, whose diplomacy has won for him an enviable reputation; Mr. Brooker, and Mr. Archibald Sharp, who are the backbone of the technical side of the Union's work; Mr. Reynolds, whose splendid powers of organisation have helped to make the Union the success it is; Mr. Cove, who works untiringly at competitions; Mr. Harding, who attends with great regularity all committee meetings; Mr. C. A. Smith, the hard-working and astute treasurer; and Mr. Straight, the indefatigable secretary.

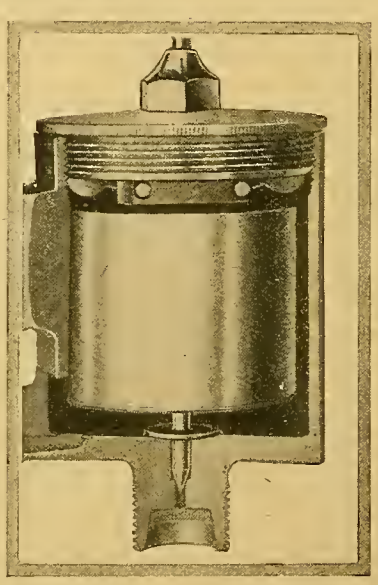
CARBURETTER ADJUSTMENTS SIMPLIFIED.

A VARIABLE PETROL LEVEL. UNIQUE DESIGN OF JET. THE USE OF GAUZES.

IT is generally known that the level of the petrol in the carburetter jet has an important bearing on the running of an engine. Successful competition riders know that a high level is necessary for fast hill-climbing and easy starting, whereas a low level reduces the consumption but renders starting more difficult. But varying the petrol level is easier said than done, and to the average motor cyclist it means a tedious and delicate operation. It is not every rider who knows that, within limits, varying the level of the petrol in the case of carburetters with toggle levers fixed inside the float chamber cover is the simplest operation imaginable. The Brown and Barlow, F.N., Triumph, and N.S.U. carburetters have the toggle levers and needle attached to the underside of the float chamber cover, and as the latter usually has a number of threads it will be obvious that by screwing the cover further into the chamber the lower will be the petrol level as the needle point is moved closer to the coned seating, and by leaving the cover partially unscrewed the level of the spirit is raised. This tip should be a lesson to novices to remember always to screw the cover well home after dismantling the carburetter, otherwise the former satisfactory level may be upset, with possible bad effects on the running of the engine. Naturally it is not prudent to overdo the screwing and unscrewing of the float chamber cover, as this method of altering the level is but a makeshift at its best, and if carried too far might result in the cover coming loose and being lost. A recently patented carburetter called the Condor possesses this feature of a variable petrol level by means of adjusting the float chamber cover. It is an improvement over the tip described above, as by the aid of an indicator and a graduated float chamber cap the operator is able to note the adjustment made, and, should it become upset from any cause, the readjustment is instantly effected. A stop is provided to prevent the cover coming adrift. It must be admitted that this arrangement will greatly simplify tuning up operations, as one has a guide to the particular level giving the best results for certain specified work, such as speed, hill-climbing, and low consumption. Moreover, think of the saving of time in arriving at the most satisfactory level, which in the ordinary course means many miles of experimenting. In the case of varying the level with the standard type of cap minus an indicator, one is working more or less in the dark.



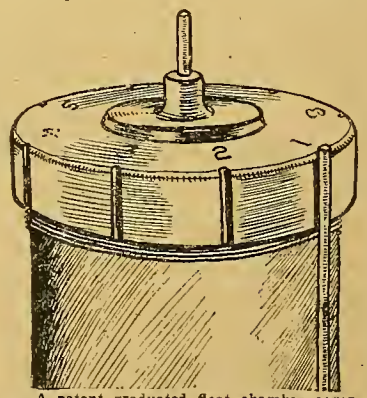
Enlarged sketch of jet fitted to the Condor carburetter. The special cup shaped end is to prevent flooding when a high level is used. Observe the gauze fitted immediately over the top of the jet. The advantages of this are mentioned in the article.



Section of a float chamber of standard type in which the toggle levers are affixed to the cover. By varying the depth to which the cover is screwed into the chamber, the petrol level may be altered.

A Special Cup-shaped Jet.

The Condor patent carburetter previously referred to possesses two other interesting features—one in connection with the special design of jet, and the other the wire gauze covering situated immediately over the jet to atomise the petrol effectively. These two parts are illustrated on this page. The unique design of jet is adopted to render possible considerable variation of the level by means of the graduated cover already referred to. As will be seen, the jet terminates in a cup or funnel-shaped formation at its spraying end. The wall of the cup projecting above the jet has the effect of preventing the petrol overflowing when a high level is used. The inventor of the Condor carburetter Mr. E. Sidwell, Coventry, asserts that he has proved that varying the petrol level at the jet gives precisely the same results as varying the jet area, this being assisted by the tapered formation of the jet.



A patent graduated float chamber cover and indicator. This is a reliable guide for varying the level of the petrol in the jet, and the simplest possible means of effecting what is usually a delicate adjustment.

Some Advantages of a Gauze over the Jet.

The gauze covering for the jet would probably result in a general improvement in running if fitted to existing carburetters. It is common knowledge that some carburetters do not effectively atomise the petrol, but pass a column of spirit in a more or less compact mass until it reaches the engine. The wire gauze is provided to atomise the petrol effectively, which results in more economical running. Gauzes have been frequently used in induction pipes, and many contend that no difference in the running is noticeable with a single gauze fitted or not. Two reasons have been ascribed for this contention. Firstly, the

Carburetter Adjustment Simplified.—

gauze was placed at such a distance from the jet that the velocity of the fuel had fallen to low values; secondly, air impregnated with road dust, etc., was drawn through the gauze at the same time, the latter making an effective trap for most of the dust and foreign matter, with the result that the supply of mixture was quickly choked. In the case of the Condor carburetter the gauze cap is placed immediately over the jet, and through which only petrol passes. By this arrangement it is claimed that a finely sprayed mixture is obtained, such as would be given by a large number of tiny jets, but without the tendency these latter have of becoming choked with foreign matter. The gauze cap is readily detachable, being pressed on to the jet tube and held securely in position by the pressure of its own spring sides.

The advent of a properly graduated float chamber cover to vary the level of the spirit marks another definite improvement in carburetters, for in combination with an adjustable main air intake such as we have illustrated and dilated upon from time to time an experienced motor cyclist with a knowledge of the principles of carburation would have complete control over the vital adjustments of the carburetter *from the outside*, and would be able to make a well-tuned engine far more flexible than is possible with any fixed proportions of main air and petrol.

THE PROBLEM OF THE PRIVATE OWNER.

Summary of a Paper read before the members of the Auto Cycle Union by the Rev. P. W. Bischoff.

ON Thursday last, the 13th inst., at 112, Piccadilly, the Rev. P. W. Bischoff introduced the problem of the private owner of a motor cycle in his paper read to the members of the A.C.U. Below we give a summary:

The subject of this paper is by no means confined to motor cyclists, but is a feature in the conduct of every sport in which amateurs and professionals engage in friendly rivalry. There is nothing in the problem unpleasant or unnatural: it is the legitimate offspring of enthusiasm and emulation. The governing body of every sport has had to face it and deal with it in a way conducive to the encouragement and purity of the sport.

Hitherto, however, the question has been left severely alone, perhaps because no one has been found of sufficient temerity to bring it forward. But I cannot see why there should be anything invidious in this distinction between the amateur and the professional. In fact, I cannot allow that any aspersion is cast on anyone, be he amateur or professional, by dwelling on this distinction between them, but rather the reverse. In short, my great desire is to put aside all question of personal conflict, and to regard the subject in the light of what it really is—one of the vital factors in the problem of pure sport.

A Survey of Other Sports.

What is this distinction between the amateur and the professional, and why should there be one? The reply is best met by a survey of the situation in other sports. In all these there are found taking part those who do so for sheer recreation and those who do so as a commercial undertaking, or, rather, on the strict etymology of the two words, the amateur who does it for the "love" of the thing and the professional who "publicly avows" that it is his livelihood.

When they compete against each other, two facts become manifest—one that between the experts (the men in the first flight of each class) there is practically nothing to choose, though the professional shows a slight superiority; the other that amongst the rank and file this superiority of the professional is quite pronounced. This is perfectly natural, and not at all surprising: there is nothing in it derogatory to the amateur or suggestive of sharp practice on the part of the professional. It follows as a matter of course that the man who spends his whole time on any particular occupation, trained up to it by a tedious apprenticeship, and kept up to it by the incentive of modern competition, will be better at his own job than one who takes it up comparatively late in life as a means of pleasantly occupying his spare moments.

But—and here comes the crux of the whole matter—the man in the trade may give his whole heart to the production and perfection of his goods, but it will be in vain unless he can command a big lay market. This leads us to the obvious deduction, so often overlooked, that each class is the complement of the other. If they pull together each gets what he wants: if they rub each other the wrong way both equally will suffer for it. So the professional cannot afford to crush the life and aspirations out of the amateur by getting all the plums, or he will find his market gone: nor can the amateur afford to snub and depreciate the professional, or he will discover that his sport is at a standstill or on the down grade.

To Safeguard the Interests of the Amateur.

Therefore we have a governing body for each sport. The object of these bodies is not to impose certain arbitrary restrictions on the conduct of competitions and to rake in the resultant fees. Their true aim is to foster and encourage sport. With this intent they certainly do promote meetings and consequently issue rules for their conduct, and, of course, require the necessary lubrication to keep their machinery in running order. But a prolonged investigation of the policies of all such bodies of which I have been able to obtain any information has pointed out to me one salient feature—that their prime object has invariably led them to safeguard the interests of the amateur. Now please notice this expression, as it is of paramount importance in the investigation which we have in hand. I do not say to coddle or bolster up the amateur and persuade him into thinking that he is a very fine fellow, but to "safeguard his interests," to enable him to win competitions on his merits, and by his abilities to create for himself an honourable position in the eyes of his fellow men. This is at once a confirmation and an illustration of my contention, which no one can seriously dispute—that the amateur and the professional are the complement of each other, and that, if either suffers, both the trade and the sport will inevitably decline.

A reference to the discussion which followed the above interesting lecture will be found in the four-page supplement included with this issue.

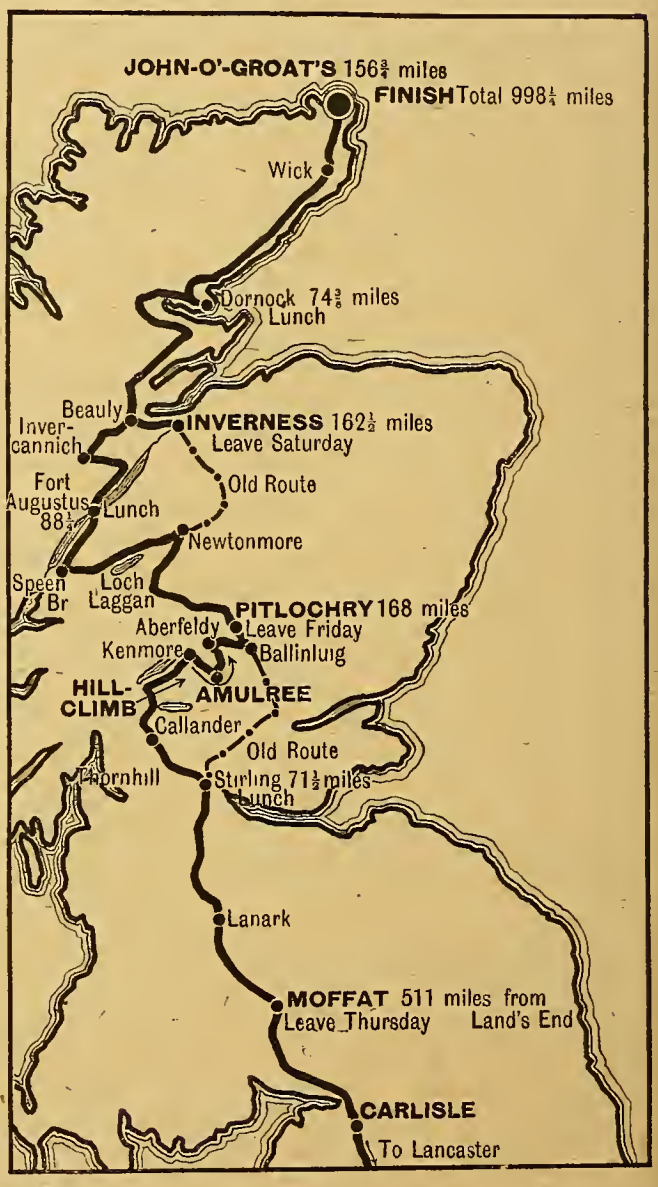
A SIMPLE PETROL FILTER.

The subject of the annexed illustration is a simple form of petrol filter, which is screwed into the petrol tap bush under the tank by the thread A. The filter consists of a pipe B, lined with fine copper wire gauzes C, and is provided with two long slits running nearly the whole length of the pipe. The petrol is free to flow through these slits, but any foreign matter which would be likely to choke the jet is arrested by the gauze, and as the pipe stands upright in the tank, it is kept clean by the wash of the petrol. The nut D is threaded internally to take the petrol tap and union combined, to which the petrol pipe is attached for feeding the carburetter. It has been protected by a motor cyclist named Conrad New, and is being marketed by J. and R. Oldfield, Refulgent Lamp Works, Warwick Street, Birmingham.

Land's End to John-o'-Groat's Trial, 1910.

THE idea of extending the route to bring the competitors back either to Edinburgh or to some other point on the homeward journey has been abandoned, as this would have resulted merely in unduly lengthening the course without making it any more severe. Instead, the route has been altered so as to include the Kenmore side of Amulree Hill and to bring the competitors into the finest scenery the Highlands can afford. The journey will be continued as before to Moffat, the competitors leaving here on the Thursday morning. Lunch will be at Stirling, as before, and thence a new route will be followed through Thornhill, Callander, along the shores of Loch Tay to Loch Tayhead, where the men will turn to the right and ascend the steepest side of the famous Amulree Hill—a climb which will certainly thin out the weaklings and call for the greatest skill on the part of the riders. The route then passes by the Amulree Hotel, and continues along the better known road to Aberfeldy, and thence to Ballinluig and on to Pitlochry, where Thursday night will be spent. Leaving Pitlochry on the Friday morning, the route extends over the Drummochter Pass to Newtonmore, where it turns sharp left and proceeds along the shores of Loch Laggan to Spean Bridge, where a turn to the right is made. At this point there is a magnificent view of Ben Nevis. The route continues along the banks of Loch Oich to Fort Augustus, where probably lunch will await the competitors. After a detour in the Western Highlands Beauly will be reached, and finally Inverness, where the Friday night will be spent. The competitors will find Inverness a far more pleasant place to stop in than Tain. On the Saturday the usual route to John-o'-Groat's house will be followed, except that lunch will be provided at Dornoch. This alteration of the route, which not only makes the trial much more severe, avoids stopping at one town where the accommodation has not been all that has been desired, and embraces some of the finest Scotch mountain scenery, should prove to be a great attraction, while, in addition, it brings the mileage approximately to 1,000.

The accompanying map shows the amended route which the competitors will follow in Scotland, the dotted portions indicating the old course in 1908.



THE MOTOR CYCLING CLUB ANNUAL GENERAL MEETING.

THE Motor Cycling Club annual general meeting was held at the Inns of Court Hotel, at 8 p.m., on Wednesday last, under the able chairmanship of the club's president, Mr. Charles Jarrott. Some thirty-one members were present.

The first business on the agenda was the election of officers. Mr. Jarrott was re-elected president amid acclamations, while the following were re-elected vice-presidents: Messrs. A. Brown, S. F. Edge, J. van Hooydonk, E. Perman, S. J. Sewell, and J. A. Jackson; captain, Mr. E. B. Dickson; hon. sec., Mr. A. Candler; hon. treas., Mr. R. C. Davis.

Mr. R. C. Davis then proposed several alterations in the club's rules, which dealt principally with the following points, and were finally adopted: (1.) That candidates for membership should pay their fees in advance. (2.) That any member of not less than ten years' standing may become a life member on payment of five guineas; or that any member who has served the club signally may be made an honorary life member without payment of fee. (3.) That a member, if his conduct shall justify it, may be compelled to resign if in the opinion of the committee or of any twenty members his conduct shall be injurious to the character or interests of the club. (4.) The abolition of voting by proxy.

During the election of the executive committee, for which Messrs. S. J. Sewell and A. F. Ilsley acted as scrutineers, the secretary asked the meeting for views on the club's programme, and especially the trial for the Jarrott Cup, which it was proposed to run off at Easter. Mr. Karslake suggested another twenty-four hours run, and did not fully agree with holding the twenty-four hours run, London to Land's End and back, at Easter. Mr. Head then explained that it was necessary to hold this competition during the Easter holiday, as late in the year the men went through so many trials of a similar nature that they lost interest to some extent. Mr. Boileau reminded the meeting that Easter would fall a good deal earlier this year than usual, and if wet and cold were experienced they were a combination not particularly desired on a twenty-four hours run.

The election of the 1910 committee was then announced. It consists of Messrs. R. H. Head, S. H. Fry, E. Gwynne, J. van Hooydonk, C. J. Seed, C. Gibbons, F. J. Jenkins, L. A. Baddeley, H. G. Bell, T. Pears, W. H. Wells, and L. Vedy.

BORE-STROKE RATIO & EFFICIENCY.

A REPLY TO JAMES L. NORTON.

By A. A. SCOTT.

IN replying to the contention that an increase of stroke without an increase of capacity gives greater power per revolution, it is necessary first of all to agree as to the limits of long and short stroke ratios. Taking the figures given in *The Motor Cycle* Buyers' Guide for February 17th, 1909, it will be found that the mean dimensions of 160 different single and twin-cylinder motor bicycles are as follows: Average bore, 74.743 mm. = 2.94in.; average stroke, 91.269 mm. = 3.19in. Hence the stroke of the average motor bicycle engine is very nearly 1.1 times the bore, consequently we can classify engines as *short* or *long* stroke, according to their variation from this proportion. An engine 3in. × 3in. should be therefore regarded as a short stroke engine, although of equal bore and stroke. This is a favourite proportion, and taking this as a standard type it can be definitely stated that if while retaining the same capacity we either lengthen or shorten the stroke, we shall not gain any increase in power per revolution, although we may find less overheating with the longer stroke, and a higher speed attainable with the shorter stroke.

Extreme Comparisons.

As I have pointed out above, the normal engine has a stroke 1.1 times the bore, therefore, in my opinion, the extreme comparison selected by Mr. Norton for illustration is only useful to point out the disadvantages of extremes, and as such abnormally short stroke engines are not in common use, it is better for the purposes of a fair comparison to consider ordinary types used in daily practice on the road.

For a practical illustration I prefer to consider the distinctive features of two engines having a similar capacity of approximately 12½ cubic inches—a long stroke 2in. × 4in. and a short stroke 2¾in. × 2⅛in. The dimensions are given in inches for the simple reason that in our investigation it is preferable to give the cylinder pressures in lbs. per square inch rather than in grammes per square centimetre, and also because of the greater simplicity of the figures we require to use.

Before proceeding to note the peculiarities of each engine, it will assist us in our investigation to understand exactly what happens in the cylinder of either engine. Now there appears to be a general impression among both riders and makers that the cylinder compression reaches 100 lbs. per square inch.

Actual Compressions.

The results from actual diagrams obtained by the use of a high speed indicator from several of the latest makes of air-cooled motor cycle engines show a maximum cylinder compression of 55 lbs. per square inch, and 60 to 65 lbs. per square inch in high compression T.T. models. The practice of attempting to gauge the compression by fixing an ordinary dial recording pressure gauge—or other similar device—to the sparking plug hole has probably led to this exaggeration, for in this case the reading is entirely unreliable since the pressure shown on the dial depends largely on the speed of the engine and the inertia of the needle hand.

Mr. Norton assumes a pressure of 73.5 lbs. isothermal, and goes on to say that the absolute pressure would be higher—probably over 100 lbs.

In the first place, the expression "absolute pressure" should be confined to its proper use—to define pressures, including the pressure of the atmosphere, as opposed to gauge pressure. Secondly, isothermal compression does not take place in the cycle of an ordinary motor bicycle engine, and could only be obtained by maintaining an equal temperature throughout the stroke, by injection of water, etc., as in air compressers. As a matter of fact, the compression, as well as the expansion curves, show a very near approach to the adiabatic, and without going fully into this very interesting subject, it is enough to state that while the well known expression $PV^{1.41}$ = constant, holds good for the compression of air, different results are obtained from the compression of carburetted mixtures, and from the expansion of their products of combustion, so that a partial adiabatic curve is shown on the diagram (see fig. 1). This leads to the curious fact that when the engine is drawing in pure air only there is actually a higher cylinder compression than when inducing its usual mixture from the carburetter, assuming, of course, that the charges are not ignited, so that the temperatures are on an equal basis.

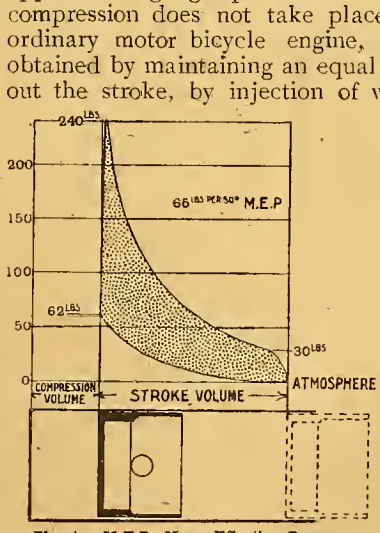


Fig. 1.—M.E.P. Mean Effective Pressure.

Now an engine is never the perfect machine it is assumed to be theoretically, and if we wish to arrive

Bore-stroke Ratio and Efficiency.—

at a practical working index of compression, we must analyse the curves shown by these indicator diagrams and find out exactly what happens under working conditions.

The writer has found that by taking the mean result from actual working diagrams obtained from different types of small petrol motors, the index for the compression curve is 1.26, and 1.36 for the expansion of the products.

Applying this to Mr. Norton's sample engine having a compression space equalling 25% of the piston displacement, we have $\frac{\text{Total volume}}{\text{Compression space}} = 5$, and since $PV^{1.26} = P_1V_1^{1.26}$, the ultimate pressure P_1 is easily found as follows:

$$P_1 = P\left(\frac{V}{V_1}\right)^{1.26}$$

$$\log P_1 = \log P + 1.26 \log (5)$$

Hence P_1 = 112 lbs. absolute or 98.3 lbs. per sq. in.

It has already been shown that such high compression is not found in air-cooled engines, and seldom in water-cooled engines, so that we can more fairly base our calculations upon a maximum compression of 62 lbs. per sq. in., and for this a combustion space of $\frac{1}{8\cdot66}$ the total volume is required.

Loss of Heat Confined to Combustion Chamber

Fig. 1 shows graphically the gradual increase of pressure during the compression stroke, the almost instantaneous rise resulting from explosion, and the rapid fall during the beginning of the expansion stroke, and it will be seen at a glance that an extreme pressure (with corresponding temperature) occurs almost momentarily at the beginning of the power stroke; the fall of pressure being so rapid that only the internal surfaces of the combustion chamber are exposed to this extreme temperature, consequently, since by far the most serious loss of heat occurs at this period, we can, for the purpose of comparison, confine our account of the loss of heat through the cylinder walls to the surfaces of the combustion chamber, although heat is still being lost in a minor degree throughout the expansion stroke.

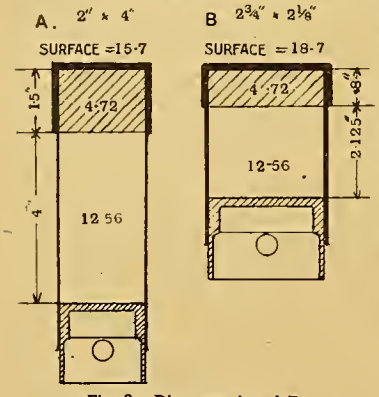


Fig. 2.—Diagrams A and B.

The diagrams A and B (fig. 2) show side by side the types of cylinder selected for comparison. The volumes are equal. The shaded areas represent the compression spaces, and the pistons are shown at the bottom of the stroke.

The short stroke B has three square inches more surface exposed to the explosion temperature than A, so it must be admitted that, comparatively, the short stroke exposes more combustion surface than the long stroke engine.

Now the comparative effect of this extra three square inches of surface will be to make the expansion curve fall more rapidly, causing the area of the diagram to be reduced, so that here we have a definite loss of power in the short stroke engine, and the obvious way to compensate for the extra surface exposed is to reduce the time of exposure by the higher rate of revolutions attainable with the shorter stroke. The effect of this higher rate of revolutions on the induction stroke we shall consider later.

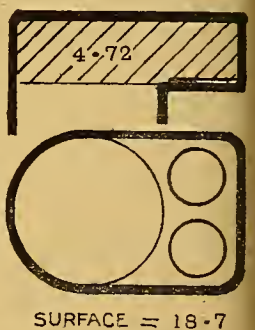


Fig. 3.—Diagram C.

Assuming equal revolutions per minute, does this extra surface cause an appreciable loss of power in the short stroke? In diagrams A and B the combustion chambers are entirely circular, without valve chests, so that the necessary valves would require to be placed in the head, opening directly into the combustion space. Now if we make the combustion chamber of the long stroke engine in the ordinary way with the usual valve chest (see fig. 3), a practice adopted on the most successful and efficient motor cycle engines of to-day, we shall lose the advantage of less surface, for although the volume remains the same, the surface exposed to the explosion temperature will now be increased by three square inches, and consequently the overhead valve short stroke engine will be as thermally efficient as the ordinary build of long stroke engine. The question therefore arises—If this extra surface has any appreciable effect on the power of high speed motor cycle engines, how is it that the standard side valve chest type of engine is so efficient compared with the overhead valve type?

It will be admitted that the same advantage is gained by adopting the overhead valve type, as by increasing the stroke ratio, and in this connection it might be observed that the valveless, two-stroke engine has this advantage without the mechanical objections of overhead valves.

Our investigation of the long and short stroke types has so far led us to agree with Mr. J. L. Norton that the short stroke shows comparatively greater area exposed to the hot gases, but on turning to the comparison of mechanical efficiency we shall find a counterbalancing effect in favour of the short stroke.

Fortunately, it is admitted that friction is independent of surface, and is in proportion to the load, so that we have no difficulty on this point in proving that the short stroke engine shows an appreciable gain in mechanical efficiency.

Frictional Loss Caused by Piston Rings.

Alhough Mr. Norton gives figures to show the increased load on the bearings of the short stroke engine, the most serious frictional loss in the engine is passed over. Now it has been proved by experiments conducted by some of the well-known makers of high speed steam engines that the friction of the bearings is quite negligible compared with the friction caused in a high speed engine by the piston rings, and although the rings of the short stroke engine are larger

Bore-stroke Ratio and Efficiency—

in diameter, we are agreed that the extra surface of this larger ring has no effect in causing friction. It is obvious, therefore, that the pressure of the ring against the walls of the cylinder will not be much greater, and could be made the same as in the smaller diameter, but on turning to fig. 2, diagrams A and B, it will be seen that the piston of the long stroke A has to travel nearly twice as far as B, so that for one power impulse we find that the piston of A travels 16in., while the short stroke B travels only 8½in., so that the long stroke type has the extra friction of moving its piston rings through a further distance of 7½in.

That is to say, for the same power impulse the long stroke engine has to develop an extra amount of power to compensate for a frictional resistance equivalent to nearly four strokes of the short stroke piston.

There is also the friction of the piston against the cylinder wall, but if long connecting rods are fitted this is scarcely worth taking into account, compared with the severe frictional losses caused by the rapid motion of the piston rings. Here we have a distinct gain in mechanical efficiency to set off against any thermal loss. As for the extra load on the short stroke piston, this can be met by proportionately designed bearings, and since in the case of motor cycle engines ball bearings are commonly used, no important frictional loss need occur from this cause.

Load on Bearings Momentarily Applied.

It can also be shown that the extra load is only momentarily applied to the main bearings at the dead centre, and that when the piston is in mid position the load on the main bearings of the long stroke engine is increased by the leverage of the longer crank, since we are assuming the same rate of revolutions, and consequently the same gearing.

For instance, from our indicated diagram we find that with the piston in mid position the M.E.P. is about 60 lbs. per square inch, so that the load on the piston of A = 188 lbs.; B = 355 lbs.

Assuming a belt pulley with pitch circle = 4in. diameter, the load on the main bearings of A will be twice that on the piston = 376 lbs., but, owing to the effect of the shorter crank of B, the load on the main bearings is only approximately 1½ times the piston load, so that instead of 710 lbs. we have the reduced load of 530 lbs. on these bearings, while in both cases the pull on the belt is the same—approximately 188 lbs. (see fig. 4).

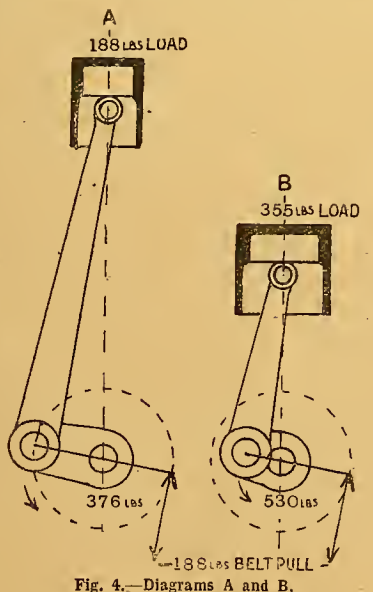


Fig. 4.—Diagrams A and B.

We have yet to consider the effect of high speed, for by an increased rate of revolutions the period during which the extra surface of the short stroke is exposed to the gases can be reduced, so that its thermal efficiency is equal to the long stroke. Since the revolutions per minute are limited by the piston speed, the short stroke B can be run at a greater number of revolutions than the long stroke A.

The Effect of the Inertia of Reciprocating Parts.

Another practical limit to high speed is the effect of the inertia of the reciprocating parts. Now a large diameter piston can be made lighter in proportion to its size than a small diameter piston, and if the correct length of connecting rod (2.5 times the stroke) be used in both types, the long stroke will have a heavy rod with 10in. centres, while the short stroke will have a rod which, owing to its shorter length of 5.3in. centres, can be made less than half the weight.

For comparison it can therefore be fairly assumed that the piston of A = 1 lb. and rod = 1½ lbs., while piston of B = 2 lbs. and rod ¾ lbs., so that the reciprocating mass of A = 2½ lbs. and that of B = 2¾ lbs.

Now it is easily found that at 2,000 revolutions per minute the resistance to retardation at the top of the stroke of A = 679.2 lbs.; B = 398.4 lbs.

Hence B must make 2,610 revolutions per minute to show equal inertia, so that we find a direct contradiction to Mr. Norton's statement that there is a considerably higher limit of safe piston speed in the long than in the short stroke. We have given the same proportion of connecting rod length in both cases, but in order to reduce the excessive overall dimensions of the long stroke a short rod is generally used. If then a rod only twice the stroke be used, the inertia of A (at top of stroke) = 707.7 lbs.

Now the shorter the rod the greater the pressure thrown on the cylinder wall during the power stroke, and, since it is decided that friction is in proportion to the pressure, this means additional frictional losses in the long stroke engine.

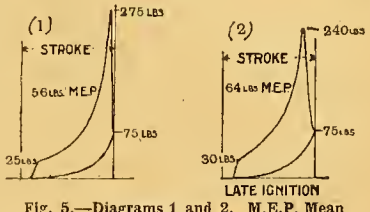


Fig. 5.—Diagrams 1 and 2. M.E.P. Mean Effective Pressure.

In some designs the crankshaft is off-set, in order to reduce the angularity of the rod on the power stroke, and since this arrangement requires extra clearance for the rod, it is more practicable on short stroke engines owing to increased diameter of the piston.

The Speed of the Gases.

When we come to consider the effect of speed on the four strokes of the Otto cycle, we shall, no doubt, at first glance be intimidated by the symptoms so graphically described by Mr. Norton. If during the one-fifty-fourth part of a second we have vacuums aching for a full charge, with hesitating inlets, etc., imagine the profound distress of the gases in a two-stroke engine where they have to hustle about the same business in one-hundredth part of a second!

Imagination is not a reliable guide for a correct estimation of the behaviour and speed of gases, and, provided the valves of the engine are large enough to permit of a mean speed of 80ft. per second, there ought to be no complaints on the part of either the incoming charge or exhaust. What actually can be

Bore-stroke Ratio and Efficiency.—

done in this direction with properly proportioned areas of discharge is shown in fig. 5, diagrams 1 and 2.

These are actual indicator diagrams taken from a 4in. × 4in. two-stroke water-cooled engine at 900 revolutions per minute, and the almost vertical drop from 30 lbs. pressure to the atmospheric line shows convincingly that here at least there is no hesitation on the part of the exhaust in getting out of doors.

Now the inertia of the exhaust gases must be greater than the inertia of the fresh charge, owing to their greater weight, so if we can detect no trace of hesitation, or rebounds, etc., in this summary eviction of the exhaust, we are not justified in suspecting the incoming gases of irregular behaviour in the seclusion of the inlet pipe. So in considering the effect of high speed on the power stroke we cannot take it for granted that the compression is lowered to any appreciable extent.

However, even if the effect of this higher rate of revolutions is to cause a slower ignition of the charge, accompanied by after burning, it does not follow that there is any actual loss of power, since diagram 2, in which these symptoms occur, shows an actually higher mean effective pressure than diagram 1, where the ignition is almost instantaneous.

High Speed and Valve Timing.

The general effect of high speed on the valve timing is, no doubt, to reduce the efficiency, but in these days of piston valves, rotary valves, sliding sleeves, and last, but not least, two-stroke engines, this becomes less felt, and can be minimised by good design.

We can therefore fairly allow the short stroke the advantage of a proportionally higher speed, and if we view the matter from the practical standpoint of power in relation to weight, as well as efficiency, the verdict must be in favour of the short stroke engine.

Adopting Mr. Norton's definition of flexibility, as representing the difference between the maximum and minimum number of strokes per minute, we have already found that, assuming that mechanical losses of A compensate for the thermal losses of B, the short stroke is more flexible, since it has a greater range of effective strokes.

It cannot therefore be held that the long stroke will do more real work with a lower gear, or that it accelerates more rapidly.

My contention is that the short stroke gives: (1) Equal efficiency and equal power per cubic inch capacity. (2) Greater range of speed. (3) Less vibration at equal speeds. (4) Less weight per horse-power. (5) Greater convenience for motor-cycle design.

The seven conditions affecting thermal efficiency given by Mr. Norton in his letter of January 3rd are all to a limited extent agreed upon in the foregoing, but we have shown that the practical effect of this thermal loss on the power of the engine cannot be considerable in view of the undoubted efficiency of the standard valve chest type of engine.

The assumption that valve dimensions are proportionate to piston area can easily be proved to be wrong by referring to the speed of the gases. Since at equal revolutions per minute we require to draw into the cylinder the same volume of fresh charge, or to expel the same amount of exhaust gases, it is evident that the valve areas must be proportionate to the piston displacements, and, as these are equal, the valves are also of equal size.

Having shown that equal volumes are induced and discharged through equal valve areas, the speed of the gases must be the same in both types, and consequently both engines will be subjected in the same degree to the throttling effect caused by high speed.

The short stroke is particularly adapted for the construction of a motor bicycle with the engine weight low down, but with the usual vertical type of engine the increased height of the long stroke cylinder gives a raised centre of gravity, while it has not been proved that it compensates for this disadvantage by increased efficiency, flexibility, and economy.

WATER-COOLING ON MOTOR BICYCLE ENGINES.

APROPOS the discussion on water-cooled engines for motor bicycles, it is interesting to read two well-known aviators' opinions with regard to air *v.* water-cooled engines. Of course the conditions on a motor bicycle and aeroplane are somewhat different, but the same object is borne in mind by designers, viz., utmost power and efficiency for weight carried.

Mr. Wilbur Wright in the course of an interview said he did not believe in air-cooled engines. He had used them on the engine of his aeroplane, but afterwards replaced the cylinders with water-cooled ones, as he found that with continuous running there was a tendency so to heat the motor that what might be saved in weight by not having the water and a radiator was more than compensated by the fact that the motor did not give as much power. His brother's experience was the same.

Glenn H. Curtiss, who, as we have already stated in these columns, is not only one of the leading aviators, but a motor cycle manufacturer also, is said to be a strenuous advocate of air-cooled motors, but it is worthy of notice that he is supplying his commercial aeroplanes with water-cooled motors, and also used a water-cooled engine of racing type when making his record flights at Rheims.

However, the leading French aero engines, including the seven-cylinder rotary Gnome, Anzani, Renault, etc., are air-cooled, so that opinions are divided in the aero world as well as among motor cyclists.

The 1910 catalogue of Rex motor cycles is to hand. It contains descriptions of the various models and engines, illustrated by photographs and drawings. It is interesting to note that purchasers of these machines have the option of the Rex valveless two-stroke engine to any model without extra charge. Parts such as the patent automatic lubricator for engine, plate clutch hub, and two-speed gear and clutch made under Roc patents have been specially illustrated and described. For 1910 the Continental rubber non-skid tyres have been adopted as standard, 2¼in. tyres being fitted to the Tourist machines and 2½in. to the de Luxe models. The catalogue can be obtained from the Rex Motor Mfg. Co., Ltd., Coventry.

TRICYCLES FOR ALL-WEATHER RIDING.

I SHOULD like to add my experience and views to the others which have been appearing on the highly interesting topic of tricycles. The two illustrations are of a tricycle I put together last March, and during the intervening period I have covered 6,304 miles, including twenty-five runs exceeding 100 miles, some of them being over 200 miles. The districts traversed were East Anglia, South Coast, London and district, Devonshire, South Wales, etc., under all conditions of weather, and sometimes pulling a trailer with 8 and 10 stone passengers.

Specification of the Tricycle.

As regards the specification of machine, it has a 1908 Quadrant a.o.i.v. engine set, cylinder 81 × 88 mm. bore and stroke, Bosch magneto (situated at the rear of the cylinder), Longuemare carburetter, Chater-Lea frame with Millford forecar attachment but minus the chair. I removed the pedalling gear, and fitted long footboards in its stead. There is a luggage carrier provided over the front axle. Other extra fittings are a Mabon clutch, Cowey speedometer and milometer, XL-All spring seat-pillar, handle-bar mirror (a valuable accessory), 26in. × 2in. Clincher A Won front tyres, 26in. × 2¼in. Clincher A Won back tyre, Stanley Dermatine ⅞in. belt. There is only one brake—a Chater Lea band brake—on back wheel.

Its Performances.

The machine has proved most reliable, and a fine hill-climber, but for hilly country a two-speed gear would be a great advantage. I use a gear of 4¾ to 1, and it easily takes me up Star Hill, Sevenoaks, and hardly troubles about Riverhill. The machine has touched 45 m.p.h. on Brooklands Track, and will do 40 m.p.h. on any good road. It is very easy to steer, corners may be taken at high speed and with perfect safety if the rider leans well over on the inside, but it is not advisable to exceed 12 to 15 m.p.h. round a right angle corner. My machine has always been easy to start. In regard to brakes, the one fitted will lock the wheel on any gradient, but never stops the machine with a shock like some push-bicycle brakes. I consider that front wheel brakes are a disadvantage on a three-wheeler such as mine, as they put a strain on the frame, and are almost impossible to keep properly adjusted.

Cost of Running.

One tank full of petrol (about 1⅓ gallons) will last for about 100 miles. The tyres referred to will stand about 7,000 miles wear on front wheels and 2,500 on back. Belts are good for well over 2,000. My record for a Stanley-Dermatine belt, purchased in two pieces (a cheap line) at 8s., is 2,804 miles, while a well-known foreign make which cost 15s. wore out in 658 miles when the machine was in use as a bicycle.

The Virtues of a Powerful Lamp.

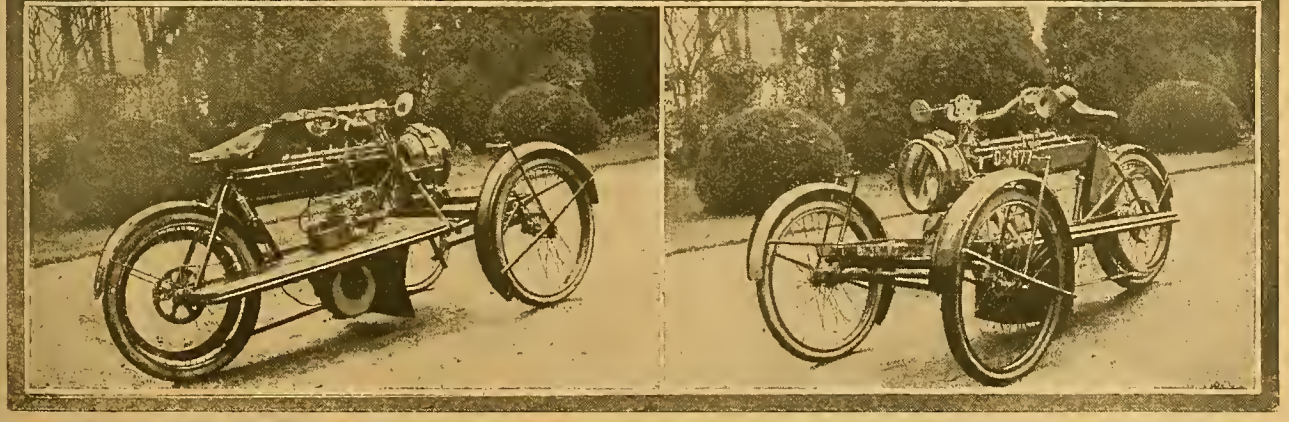
I purposely omitted any reference to the lamp in the specification, as I wanted to make special mention of this important accessory. This was the one, I believe, referred to in *The Motor Cycle* under "Current Chat" of November 8th. The paragraph was headed "Over-doing It." Well, I don't agree. This large car lamp has proved invaluable on long journeys in strange parts, as it lights up objects a long way ahead, not only in the centre of the road but the whole width, including the houses on either side. Another point in its favour is that one is enabled to read finger posts while going slowly past, instead of having to stop and direct the beam on to the post, which is the only thing to do with the usual motor cycle lamp. The make I use is a Willocq-Bottin, with oval plain glass and burnished metal interior. The generator is an ordinary drip feed. The heavy lamp necessitated a strong support, so I had a special bracket made by the Valiant Works, Riverhead, Sevenoaks, and it keeps the lamp rigid.

In conclusion, I can with confidence urge any reader who does not care to risk a side-slip by riding a motor bicycle in mud, tramlines, and grease, to try this type of combination. Of course, having three tracks it gives one a shaking on bad roads; neither is it so fast as a motor bicycle, but it is surely more sensible to use a tricycle than lay up a bicycle for the winter.

No mud or grease will make it side-slip more than a few inches, but it is advisable to switch off the engine when the back wheel is crossing wet tramlines, as it will shoot off very suddenly, and should it strike any object raised above the surface of the road it might cause the machine to overturn.

The slight discomfort on bad roads may be overcome very largely by having the front axle sprung.

RAYMOND V. E. DE B. CRAWSHAY.



Threequarter views of Mr. Raymond V. E. de B. Crawshay's tricycle, his experiences with which are published above.

OCCASIONAL COMMENTS.

By "IXION."

The Future of the Tricycle.

I see I managed to tread heavily upon sundry toes when I wrote my notes on the future of the motor tricycle as a solo mount. I am neither surprised nor annoyed about that; no publicist can altogether avoid occasional mishaps of that kind. But I plead guilty to feeling a certain impatience when the owner of the crushed toes talks as if I dared to speak without experience. I can claim some years' experience of the solo motor tricycle, implying as big a mileage as most three-wheel enthusiasts, and my mature opinion is that if there is a sound solo three-wheeler on the road it is one of the 1910 patterns, which I have yet to sample. Facts are surely on my side.

Ever since the motor bicycle was invented two drawbacks have scared would-be votaries: one is its liability to skid, the other is the fact that a stoppage necessitates a dismount, and in winter a dismount into mud. Dozens of designers and inventors have attempted to evade these inherent defects of the two-wheeler by producing tricycles of all sizes and sorts and shapes; but the great mass of motor cyclists remain faithful to the two-wheeler or prefer dropping their hobby in winter. *Ergo*, poor old much-maligned "Ixion" is not a purblind, prejudiced juggins when he doubts whether the solo tricycle possesses a brilliant future.

The Twisted Leather Belt.

Something of the same despair possesses me when I read my critics on the subject of the twisted round leather belt as a motor cycle transmission. Of all motor cycle transmissions it was the first. It remains the cheapest and the simplest to adjust. Yet only two or three makes of machines retain it, and they stand alone in a special class. Yet when I meekly venture to suggest that these facts prove it to embody certain inherent drawbacks, rendering an alternative transmission desirable, it takes an unlimited vocabulary to paint my character in its true colours.

Reforms in Big Trials.

While the silly season lasts, will some kind friend think out a sound plan of checking riders' times in an entry of sixty competitors or so, and present it to the A.C.U.? Friends who have a big experience of long trials tell me that the anxiety of getting their checks right quite spoils the fun.

To start with, even if there are no secret checks dimly shadowed forth in the rules, there is at any rate the bother of carrying two watches (in case one stops, as it often will on a motor cycle), and of keeping these two watches synchronised with the official turnip.

Having successfully surmounted these initial difficulties, you have next to find your way—easier in an A.C.U. trial than at any other time, but not always easy even then. You have then to keep your motor running and climbing—easiest with a [No free advertisements, please!—ED.]. Finally, conqueror of these colossal obstacles, you arrive at some measly little one-horse village or market town. The schedule allows you one hour for the next twenty miles after being timed through this check, and you are punctual here. But ere you can proceed you have to get a fill of petrol and sign the checking sheet. You attempt to sign the checking sheet. A youth, who has been doing nothing all day, and is rather conceited because he has a bit of coloured ribbon in his buttonhole, is muddling things finely, and as forty or fifty men are all trying to sign the sheet in due order, he is getting raggy, and making more and more of a muddle. There is ten minutes margin between minimum and maximum time, and, thanks to the inexperience of the checker and the crowd he has to deal with, this is all gone before you get a chance to sign. He books you as outside maximum time, but a judge arrives, you explain, and he antedates your signature. Thank goodness.

You now have twenty miles to do in sixty minutes. Nice time for a smoke and a look round, you think. Not a bit of it. You need some more petrol. You join an infuriated mob round a small ironmonger's shop. Fifty riders are struggling for one funnel, the supply of petrol is all but exhausted, and finally when you get away you have just got threequarters of an hour to do the distance in. This scene is repeated at intervals all day long. Sometimes the checker is what the villagers sweetly call a "natural," as was the case in one Welsh village last year, where the "official" let each rider book any time he fancied to his name, and where one rider humorously overreached himself by booking his time as half an hour earlier than it really was, not discovering till he got on the road again that he had thereby docked himself of half an hour for the next stage.

Sometimes the checker is a club—a little band of practical riders from the local club—who get their work through without muddle or swank. But, oh dear! fifty per cent. of the checks in a six days trial are almost enough to spoil the whole pleasure of the trip. I often wonder why two official cars are not sent on ahead of the competitors with automatic time recorders on board, such as are used for registering men's time at a factory. Three or four of these clocks, slightly modified for the special purpose, would facilitate the checking of the big trials past believing, and would ensure real accuracy.

Petrol Consumption Compared.

The editor has an article of mine in the press relating to petrol consumption, which suggests a technical reason for believing that motor bicycles are very extravagant in the way of petrol consumption. To pave the way for a sympathetic perusal of the article in question, may I contrast a certain car with a certain cycle? A two-seated 8 h.p. car belonging to an acquaintance of mine, weighing 15 cwts., loaded with two passengers, hood, and screen, does nearer fifty than forty miles per gallon of petrol at legal limit.

A certain 3½ h.p. motor bicycle in my own possession, weighing 3 cwts., together with rider, does one hundred miles per gallon. If the consumption of the cycle were equal in efficiency to that of the car (considering weight alone, without taking thought of wind resistance, which acts in favour of the cycle, and ought to give it a lower consumption *pro rata*), the bicycle should do nearly two hundred and fifty miles per gallon—a figure which no motor bicycle of that power can touch in a fair and square consumption trial. Therefore my motor bicycle is in this respect hideously inefficient as compared with the car. Why?

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

The Amulree Hill-climb.

[4502.]—In reply to the letter of "Fair Play" in your issue of January 3rd, Mr. Adamson's Triumph was debarred from the touring class because it did not comply with the rules, as has been already stated.

"Fair Play's" remarks anent the weights of the machines are without authority, as neither of the machines in question was weighed. JOHN CAMERON.

[This correspondence must now close.—ED.]

Licences for Motor Cycles.

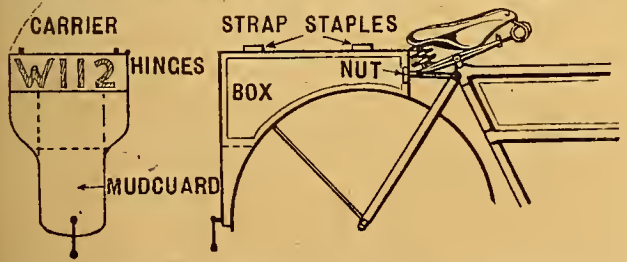
[4503.]—I wish to endorse your suggestion *re* taking out of licences in counties where consideration is shown to motorists. I should like to suggest Staffordshire as being one of these. The Chief Constable is a gentleman and the son of a peer, but what is of much more importance he is a gentleman in his conduct. I believe until recently such a thing as a police trap was unknown, and would have remained so but for the recklessness of a few car drivers. Anyone sending his 15s. to any post office in this county (not, of course, to a county borough) and enclosing his filled up declaration form and a stamped addressed envelope will be assisting the Staffordshire ratepayers. POSTMASTER.

Does an Engine Run Better at Night?

[4504.]—I noticed in *The Motor Cycle* of January 3rd that Mr. Edward O. Dunkley, of Rhode Island, U.S., states that motor cycles run better at night than in the daytime. I have noticed this for a long time, not only with motor cycles but also with cars. I believe that at night the air is more solvent, and therefore more capable of containing petrol vapour, so that a given quantity of air at night or in cold weather is capable of containing more petrol vapour than the same quantity of air in the daytime, or at any time when the atmosphere is charged with water vapour. I shall be very pleased to hear a satisfactory explanation from one of your readers. W. R. B. ANNESLEY.

A Suggested Toolbox and Carrier.

[4505.]—Nowadays, when almost every motor cycle has a fixed luggage carrier, I have often wondered why makers do not utilise the space between the carrier of the rear mudguard as a toolbox or carrying receptacle. It would be inexpensive, out of the way, the rear end of the box would carry the number plate, and the box itself would never be



found superfluous. It might be made of aluminium and lined to match the petrol tank, or sheet iron enamelled to match the frame. If made the same width as the carrier (say 9in.), the lid would have staples fitted for strapping luggage on, and the lid could be opened without taking off the luggage. The accompanying sketch will explain my meaning. NORRIS W. DENT.

Increase of Speed on Partially Raising the Exhaust Valve.

[4506.]—I notice there is some correspondence taking place on the above subject in *The Motor Cycle*. In my opinion the increased speed is due to the compression of the engine being too high, and when the exhaust valve is slightly raised it relieves a little of it. Thus not so much energy is wasted in compressing the mixture, and also we get a better explosion. Petrol engines are more efficient and more economical with a low compression than with a high compression. I cannot see what effect slightly raising the exhaust valve has on making the belt grip.

J. G. RICHARDS.

The End-to-end Record.

[4507.]—I have lately been reading the accounts of the push bicycle records over the End-to-end route, and was surprised to note that the official distance was given as 840 miles when the ferries at Granton (near Edinburgh) and Kessock (near Inverness) are used. I understand that Mr. T. Peck intended to make use of the ferries on his last attempt to break the motor cycle record standing to the credit of Mr. Hart-Davies, who, I believe, did not use the ferries. I should be glad, therefore, to learn what route Mr. Peck followed, as it is obvious that a saving of practically fifty miles is an enormous gain, not only from the point of distance involved, but it also enables the rider to obtain a complete rest and make lengthy adjustments to his machine whilst on the ferries, the Granton ferry, I believe, taking nearly an hour to cross.

CLAUDE E. WALLIS.

Lightweights v. Heavyweights.

[4508.]—In reply to Dr. Gaskell's letter [No. 4495] I should like to point out that never on any occasion have I ridden past a broken-down motor cycle, but have always stopped to enquire if I could assist the rider in any way, and am only too pleased when I am able to do so. On more than one occasion have I towed broken-down motor cycles to the nearest railway station—a thing which a lightweight machine could not do.

I should also like to mention that I am a corn merchant, and have a lot of farm to farm travelling to do. On one of my rounds I have as many as twenty-eight places to call at in one morning. If I am in any place long enough to allow my engine to get cold a little petrol injected in the cylinders will start it as easily as if hot. I have a few times done my rounds on lightweights, but have got tired with the persistent pedalling necessary on anything like a hill, and I can assure him this vigorous pedalling to get to the top of the hills took far more out of me than starting my heavyweight machine twenty-nine times in one morning. And I still "uphold" the heavyweight without the assistance of two other strong young men and a boy.

B. G. DURKIN.

[4509.]—Perhaps my experience of a lightweight motor cycle will be of use to your readers who contemplate having one, and are either past the "hop, skip, and a jump" age, or have a defective gear—in my case, "heart." My medical man told me to give up pedal cycling, but as I have a widely scattered business connection, suggested a lightweight motor cycle, but barred the running to mount business. I bought a Motosacoche, having in view probable breakdowns and its easy conversion to a pedal cycle. This is the second year it has been running, and the mileage, which I noted this year, is over 4,500 miles, and never a breakdown. Weather

has made no difference, and my appointments have always been kept. Speed averages eighteen miles per hour, and after returning from a journey I attend to the machine.

About every 600 miles I scrape piston and cylinder head, and grind valves when necessary. Ignition is accumulator, and has never failed me, and notwithstanding experts' advice to the contrary I shall stick to it.

Three belts have been used, and two are still in use, though getting thin. Tyres are Continental, non-skid back and plain front. I have had one puncture only, and the tyres seem good for another 3,000 miles, which is about what they have done. A sovereign would cover the cost of necessary renewals this year excepting tyres and belts.

The result of having machine is 25% increase in business, and a save of half the time wasted in travelling. Now after a sixty miles run I can slip into my work, which formerly was impossible, and feel all the better for the ride.

To sum the machine up, for reliability, lightness, ease of handling, and cost of running, it is the ideal machine for a business man of limited means and of limited strength.

HARRY SHARPE.

The 1910 Six Days' Trials.

[4510.]—Now that the A.C.U. is beginning to consider the regulations for the 1910 Six Days' Trials, I hope it will go the whole hog and stop all overhauling in controls. The work in controls should be limited to lubrication of magnetos, etc., replenishing tanks, and packing luggage. On no account should the continuous noise from 7 to 8 a.m. be allowed, resulting from starting up engines. A definite limit of, say, fifteen minutes might be allowed at each control. This might be made shorter if the competitors were made aware of the exact position of the control. Finally, though I am afraid I shall be laughed at, I strongly object (for it is bound to do the motor cycle movement a deal of harm) to seeing men or machines travelling from one end of the country to the other wrapped up with spare tubes. Abolish spare tubes and bring tyres into account, then we may hope for intelligence and improvement in that department.

F. C. MUSTARD.

P.S.—I hope the A.C.U. will not put its officials behind the hedges for surprise controls. Anyone who has ridden in a 200 mile non-stop trial at twenty miles an hour will know what to expect when there is a week of twenty miles per hour awaiting him.

The 1910 T.T. Race.

[4511.]—As a prospective competitor in the above race, now that the provisional regulations have been published, I should like to make a few remarks and suggestions.

I sincerely hope that practising will be allowed on more than seven days previous to the race. The course selected is well known to be a very "tricky" one, and with practising only permitted from daybreak to eight o'clock each morning, it is extremely doubtful if any rider who is new to the course could accustom himself to riding up to the necessary safe limit of speed in so short a time. May I suggest that either a fortnight's practising be arranged for, or that competitors be allowed to ride round the course all day if they wish, provided they do not exceed the legal limit after 8 a.m. It is well known to all who have taken part in the previous races that the inhabitants of the island, including the press, are very keenly interested in these events, and no unnecessary or hampering restrictions are imposed.

I should like to propose also that the A.C.U. again promotes a hill-climbing competition in the island, and hope it will not be necessary to have two, especially on the same day. It would be much better for the competitors if the climb were held before instead of after the Tourist Trophy Race, as it would then be unnecessary to have to set to work to "tune up" immediately after the big event is over.

FRED C. BAGSHAW.

Ease of Starting.

[4512.]—I think that "Ixion" is a little bit "off the line" when he says that paraffin injections before starting mark an imperfect machine, at least I so read his paragraph "Ease of Starting." As he knows very well, it is only necessary to ease the piston rings (a) when the piston is a good fit in cylinder, or (b) when using thick oil in cold weather. Now, as an accurately fitting piston means freedom from knocking, good compression and full efficiency, it follows that it must be everybody's desideratum. Therefore, it cannot be a defect. In my opinion, a new machine that does not require a dose of paraffin or petrol before starting, to free the rings, indicates that the maker did not know his business.

My machine now suffers from a loose piston, resulting in a permanent knock and loss of efficiency. No paraffin injection is consequently necessary, though it was for the first 5,000 miles. Yet I am going to spend £3 to get back a good fitting piston and cylinder, and with it the need for a paraffin injection before starting from cold. If "Ixion's" argument means anything at all, it means that I am simply frittering money away to secure an undesirable state of affairs, which is not the case.

No, "Ixion"; it was because the machines in the Six Days' Trials were new that they required paraffin injections. It is not a defect. Why they did not start easily afterwards is more than I can say, however. E. M. OLIVER.

Another Rejuvenated Tricar.

[4513.]—There has been considerable interest of late in tricars, and especially of the type nearest approaching the light car for comfort and sociability, and I therefore venture to send you a photograph of a tricar I have been using for some time with success. It is of small power, 4½ h.p. Auto-moto engine with two speeds, and, as you will see by the photograph, the three seats are built the same height, and

Home-made tricar referred to in Mr. G. P. Sentance's letter.

are all set on strong spiral springs. It is exceptionally comfortable to both passengers and driver, and, being seated in this way, there is scarcely any wind resistance.

I can travel from eighteen to twenty-four miles per hour with three persons up, and have not as yet been stopped by any hill, the low gear being very reliable.

I may say the tricar was rebuilt to my own idea, and I had considerable trouble in getting it done, as the local firm at first said it would not be safe. Now they have nothing but praise for it. G. P. SENTANCE.

The Transmission Question.

[4514.]—I have read with usual interest "Occasional Comments" by "Ixion" in last week's issue of *The Motor Cycle*, and would like to take the liberty of making a few comments on the matter of transmission. I cannot help thinking that there is a tendency on the part of some English motor cyclists who are not thoroughly familiar with the advantages of chain drive to cry in favour of the belt drive, and until they—like myself—have a chance of riding a machine equipped with a scientifically applied chain drive, I can quite understand their feelings. Until this last year I was greatly in favour of the belt drive, but after I had given the Indian chain-driven machine a thorough trial and found for myself what a comfortable and practical drive the chain gave, I had no further use for the belt. I can assure motor cyclists in this country that my opinion was not changed because I decided to sell Indians in this country, as it must

be very well known that the Hendee Manufacturing Co. did supply a belt-driven model in 1909.

This machine was fitted with Shamrock-Gloria belt and the standard English belt rim on the rear wheel. To the engine was fitted one of the best designed belt pulleys I have ever seen, and it was quite optional to me whether I sold these machines with the belt or chain drive. "Ixion" says: "I have little doubt that as the Americans learn to make better belts we shall hear less and less of the chain drive in the States." Possibly this may be the case; if so, it can be put down to two reasons. Firstly, because there are at the most only one or two leading manufacturers who understand how properly to apply a chain drive to a motor cycle; and, secondly, and undoubtedly the principal reason, is that the belt drive is very much cheaper to manufacture. On the other hand, I maintain that the chain drive is far cheaper for the rider. In the first place a chain will outlast two or three canvas and rubber belts of the best makes; secondly, a chain sprocket on the engine will last as long as a belt pulley, and when renewed costs about one-third as much. The sprockets on the counter-shaft and rear wheel, as well as the longer chain, will last many thousands of miles, and when a new one is required it costs no more per foot than a first-class belt.

As for the rigidness of the chain drive, I can only say that, when the clutch is properly adjusted, there is no apparent slip when running at a steady pace, yet it is very apparent that there is a slip in starting and after switching on and off, which is proved by the fact that rubber-studded tyres will last as long as, if not longer than, on a chain-driven Indian than on belt-driven machines of other makes.

It is interesting to hear indirectly that some of the largest motor cycle manufacturers in England are experimenting with chain drive, and the possibilities are that we shall see other machines than the Scott, P. and M., and Indian, fitted with chain drive in this year's T.T. Race.

W. H. WELLS.

[4515.]—We have read with much interest the paragraph in the issue of *The Motor Cycle*, January 10th, under the above heading, but we feel that the writer is speaking without knowledge of a chain drive. He states that a belt which lasts 2,500 miles seems to be a most unusual thing, but we can assure the writer that if he used the chain drive, 10,000 miles would be a very small distance, and with regard to smoothness of drive, etc., we are willing to demonstrate to Mr. Olsson, or any other person interested, that with a 3½ h.p. machine and a sidecar with 12-15 stone passenger we can start from a standstill, just as Mr. S. F. Edge would do with a six-cylinder car and plate clutch, which, we think, should satisfy anybody. We are glad to note that Mr. Olsson admits that advocates of chain transmission are becoming more numerous lately, and we quite agree with him. Surely this is because chain drive proves itself more efficient and reliable than belt drive.

PHELON AND MOORE, LTD.,
W. PRATT, London manager.

Water Cooling on Motor Bicycle Engines.

[4516.]—Your contributor, "Ailette," has written an interesting and convincing article on the subject of water-cooling for motor cycle engines. May I remind him of the Mototri-Contal 2¼ h.p. tricar, which flitted before our notice for a brief week in the summer of 1905. This had a really comfortable coach-built front seat, and it was fitted with an engine that would not be considered large on a present-day lightweight. It had a hub epicyclic gear giving two speeds, about 8 to 1 and 20 to 1, but no reverse. The water-cooling on the thermo-syphon system was the life and soul of this diminutive motor. It went through the A.C.U. Six Days' Trial, in which I was an official, and several times I was the passenger. The driver was a real heavyweight, yet it climbed Birdlip on the last day without shedding the passenger. It never faltered, and it never once knocked. Of course, it boiled like a steam car on long climbs, up which it plugged steadily at about five to eight miles an hour; but it never appeared distressed. It averaged ten to fifteen miles an hour over undulating country—wonderfully good for two people on 2¼ h.p.

Water-cooling was the secret of its success, and I think this method might with advantage be more widely adopted.

J. W. G. BROOKER.

Cost of Running a Small Car.

[4517.]—I have been running a 5½ h.p. O.T.A.V. four-wheeler for about ten months, and as the details of the expenses may interest some of your readers I enclose them, with one or two remarks.

The little car has a single-cylinder engine 100 × 110 mm., accumulator ignition. It is air-cooled by a fan and air jacket, and has two speeds forward. Drive is by a chain from engine to a counter-shaft (parallel to the back axle), on which is carried a two-speed epicyclic gear box, and thence to the driving wheels by ordinary motor cycle belts, ⅞in. wide by 7ft. 6in. long. There is no differential, belt-slip being sufficient to allow one wheel to over-run the other. My car was not new, having been used in trials by the agents, and its total cost with accessories was £98 9s. 6d.

RUNNING COST.	£	s.	d.
Petrol (58 gallons)	3	6	6
Lubricant		6	0
Tyres (two Clincher Dreadnought, 26 × 2¼, and slight repairs)	4	13	6
Repairs	11	11	0
Licences, registration, and tax	3	7	0
Insurance	4	10	0
Garage fees	1	19	0
Miscellaneous		19	0
Total	£30	12	0

Mileage, 1,125; miles per gallon petrol 19.4 (large waste); running cost per mile, 6½d.

REMARKS.

(1.) *Petrol.*—Much was wasted through experimenting and a leak in the tank that could never be stopped for long. Running consumption, I reckon, about thirty-five miles per gallon (gear, 7 to 1 on top).

(2.) *Tyres.*—I have not had a puncture yet. The rear tubes are filled with Miraculum.

(3.) *Belts.*—Give a good deal of trouble, being too short and too small. Turning corners, too, is very hard on them as they are made to slip. One occasionally breaks or comes off, and is lost without being discovered in time.

(4.) *Speed.*—I can average about 18 or 19 m.p.h. over a run of, say, fifty miles under ordinary conditions. Gear is low, and the car can take hills up to 1 in 16 or 17 on top with two up.

(5.) *Repairs.*—These include a new epicyclic brake drum which cracked; new pulleys, one having dropped off and was lost; a new chain, and sundry minor items. The prices charged for replacements are, in my opinion, high. In spite of all this, when all the weak points have been eliminated, the car is very satisfactory and economical to run. It weighs about 450 lbs., and the engine is a very good one, having 1⅞in. valves to its 4in. bore, and an a.o.i.v.

I have not done a very big mileage, because I ride a motor bicycle for solo work.

SILEMA.

SUMMARY OF OTHER CORRESPONDENCE.

Osmond Hill writes in strong praise of the Lincoln Elk motor bicycle. The machine was purchased last May, and with the exception of one broken exhaust valve has given no trouble.

EXPERIENCES WANTED.

STAMPS SHOULD BE SENT FOR FORWARDING REPLIES TO QUERIES UNDER THIS HEADING.

"K 2305" (Liverpool) would like readers' experiences of A.C. tandem tricars, particularly as to reliability and good material.

"R. B." (Plymouth) desires users' experiences of the Triumph plate clutch model, particularly as regards starting on hills.

"G. J. H." (Henley-on-Thames) would like experiences of the Zenith Gradua gear used with and without a sidecar. Also of a Triumph fitted with Gradua gear and used with and without a sidecar.

"A.E.L." (Heavitree) would like users' opinions of the two-stroke Scott as to suitability for sidecar work in hilly country, and also if there is trouble by reason of the charge of gas firing in the crankcase.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Small Water-cooled Engines.

I want to procure a small water-cooled petrol engine to drive a lathe. Please say where one would be likely to obtain a 3 to 4 h.p. engine, water-cooled.—J. G. P.

Small water-cooled engines of the size you require can be obtained from the Stevens Motor Mfg. Co., Ltd., Wolverhampton; White and Poppe, Ltd., Coventry; and Aster, Ltd., Wembley Park, Middlesex.

Worn Tappets.

The shafts of my valve gear (1907 machine) are loose. As the parts are, of course, hardened, could a local motor mechanic put this right? If so, kindly tell me the proper thing to do. The tappets are considerably worn, but the pinions and cams are little the worse for wear.—H. A. B.

It entirely depends upon the skill of your local mechanic. If he is a really skilful repairer, and used to repairing motor bicycles, he will probably carry out the work effectively. You do not say where or how the shafts are loose. We should recommend you to obtain any spare parts required from the makers of your engine, as they would fit better and could be obtained from stock.

How to Prevent Knocking on Hills.

I should be glad if you would tell me what to do when engine of my motor cycle starts knocking on hills. It is a free engine Humber. I cannot pedal, as you advise another querist, but I have tried retarding the magneto spark lever, opened and closed throttle and air, and still the engine knocks.—J. H. E. (Liverpool).

First of all check over the timing and see if the spark is too much advanced, and, secondly, dismount the cylinder, and remove all the carbon deposit on cylinder and piston heads. If the engine still knocks or pounds, you do not manipulate the levers properly, or there is a loose or worn bearing in the engine. The correct way to drive when climbing a hill is to increase speed on approaching the rise by opening the throttle and adjusting the air lever to suit. As soon as the engine shows the slightest falling off in speed, close the air lever gradually to enrich the mixture, and open the throttle fully if the gradient demands it. The magneto spark lever should not be retarded unless the engine continues to fall off in speed after the air lever is closed.

Local Taxation Licence.

(1.) In the official form sent to be filled up this year I notice a paragraph which I have never seen before, stating that the registered number of the car or cycle must be given. I suppose the authorities do not mean from this that the licence is not transferable? What I mean is that I expect in a few days to sell my old machine and buy a new one. As I shall take care not to have two machines at the same time, I presume one 15s. licence will be sufficient. Please let me know if this is so. (2.) With reference to the registered numbers. I am expecting to sell a 1908 Triumph motor cycle and buy a 1910 model of the same make, and there would thus be absolutely no change in the particulars registered. In these circumstances could I merely transfer my number from the old machine to the new one?—V.G.M.

(1.) As stated last week, we are advised that there is no legal obligation to furnish the particulars referred to. Certainly the carriage licence is transferable, as it allows you to *keep* any one motor cycle, consequently one licence will be sufficient for several machines in one year, provided, of course, you do not own more than one at the same time. (2.) You must take out a fresh registration for the new machine, though if you wish to retain the old numbers you may probably do so if you ask leave of the authorities.

Easy Starting. Oiling Clutch. Tight Belt.

My motor bicycle is fitted with a Mabon clutch and handle-bar control carburetter. (1.) Would White's economiser be an improvement as regards (a) power, (b) easy starting, (c) slow running in traffic (I live in London), and (d) petrol consumption? (2.) Would my 3¼ h.p. machine take a sidecar, and if so with what gear? I do not mind occasionally assisting the engine with the pedals. (3.) Can one give too much oil to the clutch? (4.) What is the result of having the belt too tight except risk of breakage?—W.S.H.

(1.) First of all, try stopping up one of the main air holes, and if an improvement is noticeable, an adjustable main air intake, such as the device in question, will help you considerably as regards power at slow speeds and ease of starting. (c.) Also slow running in traffic. (d.) We are, however, doubtful if it would improve the petrol consumption, except that it would enable a smaller jet to be used. (2.) Your machine would take a sidecar on fairly level roads with a 5¾ to 1 gear. (3.) You can, of course, give too much oil to this clutch, as an excess would leak out and make a mess, and probably get on to the belt. Frequent lubrication in small quantities is best. (4.) If you have the belt too tight you wear the engine bearing to an excessive extent, and probably tear out the fastener.

Inland Revenue Tax Exemptions.

I use my motor bicycle for attending markets, fairs, sales, etc., in connection with my business, and use it for business alone. I held a licence in 1909, but do not intend to take out one for 1910 if I am not legally required to do so. Kindly advise.—N. D.

We are afraid you will not be exempted from paying the Inland Revenue licence, as your machine is not specially constructed for the transport of merchandise.

Loss of Power. Replacing Carburetter.

I do not seem to get the power I ought to out of a new 1¼ h.p. lightweight. The engine is quite new, but I have got a very old pattern carburetter fitted. It has no float chamber, the petrol runs direct to the needle, and it seems to me that sometimes the engine gets too much petrol, at other times not enough, and then it misfires. I am told by a local maker that by fitting an up-to-date carburetter I shall get double the power. At present it will not climb any of the little hills about North London. I can also hear a little hiss of wind past the inlet valve. Would this cause a noticeable loss of power? It is very difficult to make a good joint, as the whole of the inlet valve screws into the head just over the exhaust valve. How can I make a good joint of such a valve?—W.C.B.

We quite agree that the new carburetter would improve the power immensely, and we would recommend you to have one fitted without delay. The hissing is due to a leakage and a loss of compression. So long as this exists you cannot expect the engine to give full power. It is not good practice to screw the valve seat into the head. To make a good air-tight joint, see that the surfaces are perfectly flat and clean, then fit a soft copper and asbestos washer, and paint the joint with fish glue obtainable from most marine stores.

MOTOR BICYCLES FOR SALE.

09 Triumph, not been ridden 200 miles. Polkey lamp and generator, trimote horn, new last August; price £37.—Wilson, 19, Wellington St., Bradford, Manchester.

BIGGEST Bargain ever offered.—3½h.p. Quadrant, in good running order, complete with belt, coil, accumulator, horn, tool bag, number plates; £4 19s. 9d. Booth's Motories, Halifax.

3½h.p. Minerva, magneto, spring forks, footrests, 4 h.b.c., lamp, horn, watch, spares, tyres good, Watawata belt, new cylinder; £18, offers.—Pearson, Lyear, Bedale, Yorks.

EX, 5½h.p., twin Rex, spring forks, separate generator lamp, horn, stand, and new spare tube, suit tecar; £16 16s.; exchanges considered.—Motor Exchange, Westgate, Halifax.

h.p. Humber, chain driven, free engine clutch, Longuemare carburetter, Dunlops, non-skid on back wheel, od condition throughout; £8.—Bate, 23, Park Rd., lborne, Newton-le-Willows.

EADY for Delivery.—1910 Premier, 3½h.p., twin quite the coming success, and undoubtedly the est little jiggers on the market; 50 guineas; exchanges ntertained; send for list.—Hardman, Stockton Heath.

h.p. 1906-7 Norton, in new condition, and good going order, guaranteed, recently overhauled, Palmer front, ncher back, coaster, H.B. switch, registered; ready road; £9, near offer.—Moore, 19, Cowley Hill, St. lens.

IVERPOOL Motorists should, to protect their interests, buy Triumph, Douglas, Scott, and F.N. tors only from the responsible official agents, Hitchs, Ltd., 74, Bold St., who alone can substantiate makers' guarantees, and also supply spare parts from ck.

RIUMPHS.—Hitchings, Ltd. (the official agents), have several second-hand machines for sale at low prices 07, 1908, and 1909 models; all guaranteed; inspection invited.—Hitchings, Ltd., 74, Bold St., Liverpool.

COTT 2-stroke 2-speed Water-cooled Motor Cycles (for which Hitchings, Ltd., are the sole Liverpool and strict agents) should be ordered now to ensure early livery; send for descriptive catalogue.—Hitchings, Ltd., Bold St., Liverpool.

IGHTWEIGHT Douglas and F.N. motors, latest models in stock at 74, Bold St., Liverpool.—Hitchs, Ltd., are the sole agents, and invite enquiries.

h.p. Twin V.S., Truffault forks, magneto, Clincher studded butted tubes (unpunctured), Whittle belting and enamel unscratched, absolutely new condition, with 1909 Chater-Lea rigid sidecar, complete; £29 .; separate or exchange.—7, River View, Ashton-on-ble.

SECTION III.

Cruarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

10 Triumphs; delivery from stock.—Altrincham Garage, 1, Church St., Altrincham.

09 Triumph, used ten weeks; owner going abroad; £40; must sell; complete.—H. Marston, Rock ry.

OTO-REVE, new August, 1909, Druids, Watawata, adjustable pulley; £22 10s.—V. Johson, 68, Radne St., Derby.

WIN Rex de Luxe, magneto, cantilever, twin tyres, spring forks, Roc clutch; offers.—68, Wellington North, Stockport.

h.p. Minerva, vertical, M.O.V., 26in. wheels, perfect and sound condition; £6 10s., bargain.—Meredith, ester Rd., Over Winsford.

ARGAIN of a lifetime.—1909 3½h.p. Rex, beautiful machine, complete; £34; buying car.—3,879, *The Motor Cycle* Offices, Coventry.

h.p. Raleigh, chain driven; cost 80 guineas; little used with new covers; price £15.—P. Robinson, k Hill, Egginton, near Derby.

h.p. Brown, magneto, new December, run 100 miles, spring forks, variable pulley, all accessories; £34 quick sale.—Henshaw, wheelwright, Stockport.

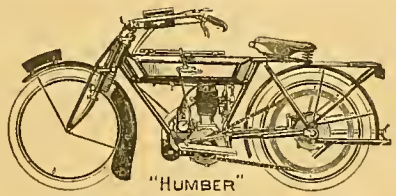
09 Triumph, enamel and plating as new, machine and engine guaranteed perfect throughout, searchlight lamp, horn, etc.; £37.—Browne, Beaconsfield, Oxton, Birkenhead.

RIUMPH, 1907, H.B. control, splendid condition and appearance, accessories, and spares; any examination here; £24, lowest; no offers.—Gregory, Sir John Arren Hotel, Ilkeston.

ARGAIN.—3½h.p. Quadrant, 1907, like new, low, fast, reliable, spring forks, stand, Brooks B100 saddle, new Shamrock studded tyres, etc., etc.; accept £18.—Gibbs, Mill Hill, Sandbach, Cheshire.

h.p. Roc, magneto, two speeds, free engine, handle starting, non-skid device, absolutely impossible to turn machine over, will take sidecar anywhere, in practically new condition throughout; sacrifice £32. — R. ge, Leawood, near Matlock.

1909½ 1909½ 1909½



"HUMBER"

Just received from makers, a few

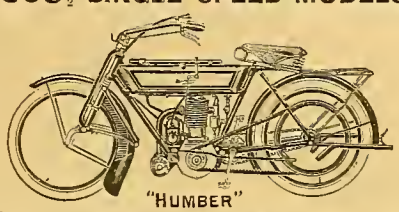
1909½ HUMBERS

brand new. These you can hardly tell from 1910 models, being fitted with improved pattern silencers, spring forks larger pulleys, Roc licensed two-speed gear, H. B. control registered tank, high tension magnetos, Dunlop tyres, oil pump operated by toot, stand and carrier, toolbag with all tools fitted to handle-bar. Fully guaranteed.

£42 10s., or exchange, or credit.

SPECIAL DISCOUNT FOR CASH.

1909½ SINGLE SPEED MODELS.



"HUMBER"

Brand new, fitted with latest pattern silencers, spring forks, magnetos, pedalling gear, stand, carrier, toolbag, tools, number plates,

£37 15s., exchange or credit.

Cash offers wanted. Why buy second-hand machines when brand new, up-to-date, fully guaranteed machines can be had at these prices. Remember number is limited.

Credit or Exchange. Send for List.

3½ h.p. QUADRANT, 1909, Roc two-speed	£35	10
3½ h.p. MINERVA, magneto, French grey	£22	10
3½ h.p. ARNO, magneto, H.B. control, new	£32	10
3½ h.p. ARNO, magneto, new, non-skid	£32	15
3½ h.p. ARNO, magneto, new, Palmer's	£33	10
3½ h.p. HUMBER, new, 1909 model	£39	10
3½ h.p. REX, 1909 Tourist, soiled only	£32	10
3 h.p. 1909 DOUGLAS, like new	£32	10
5 h.p. REX, 1909 model, like new	£32	10
5 h.p. Twin BROWN, 1908, magneto, free engine	£28	10
3½ h.p. BAT, magneto, spring frame, two speeds..	£24	10
3½ h.p. TRIUMPH, 1909, nearly new	£35	0
3½ h.p. TRIUMPH, 1908, good order	£30	0
3½ h.p. HUMBER, 1909, two speeds, non-skids ..	£37	10
3½ h.p. MINERVA, magneto, 2¼ tyres.....	£18	15
2½ h.p. LLOYDS, vertical engine, 26in. wheels ..	£8	15
3½ h.p. 1909 HUMBER, two speeds	£37	10
3½ h.p. N.S.U., magneto, 2¼in. tyres, long bars ..	£22	10
3 h.p. N.S.U., magneto, 1908, smart	£17	10
3 h.p. REX, 1908, magneto, h.b. control	£17	10
3½ h.p. REX, 1909, nearly new	£32	0
5½ h.p. REX DE LUXE, Roc clutch, magneto ..	£25	10
4½ h.p. TWIN MINERVA, magneto, spring forks	£22	10
5 h.p. TWIN REX, spring forks, low built	£16	10
3½ h.p. REX, spring forks, trembler coil	£10	10
3¼ h.p. REX, 26in. wheels, M.O.V., h.b. control..	£8	15

Send for List of 200 machines.

£4 17s. 6d.

CORONET SIDECARS.

Spring back and front, detached in three minutes. Several other advantages. Descriptive circular post free.

BOOTH'S MOTORIES,
CHARLES STREET, off Square Road,
Phone 1062. **HALIFAX.** 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

3½h.p. Birmingham Quadrant, 1910 Amac, ball bearing magneto; also

3h.p. Birmingham Quadrant, handle-bar control, carburetter, both guaranteed; cash offers.—Reg. Samson, Ladywood Rd., Birmingham.

TRIUMPH, 1909, scarcely soiled; offers wanted.—Trelawney, King Edward Rd., Coventry.

3½h.p. 1907 Triumph, magneto, spring forks, thumb switch, splendid condition; nearest offer to £24.—Below.

3½h.p. 1907 Model Triumph, new June, 1908, equal to new throughout very little used; £28, or nearest offer.—Frank Hall, Triumph Agent, Broughton Astley.

KERRY, 2¾h.p., fast, reliable, low frame, 26in. wheels, long bars, excellent order; £8 10s.—67, Southgate, Sleaford.

2½h.p. Minerva, Dunlops, Whittles, just been overhauled; bargain, £8, or offer.—W. Lock, Heeley Rd., Bournbrook.

MOTOSACOCHE, complete, spares, spring forks, new back tyre, good condition; £13.—Daws, 35, Tennyson St., Leicester.

3¼h.p. Rex, 28in. wheels, non-skid R.O.M., trembler, two accumulators, spares; £7.—Gibbins, Barcot Green, Birmingham.

1908 3½h.p. Rex Motor Cycle, splendid condition; will ride 50 miles to a buyer; owner going abroad; offers.—George Rice, 116, Sanvey Gt., Leicester.

3½h.p. Triumph, late 1908, and brand new 1910 Chater-Lea coach-built sidecar, cycle in perfect condition, Palmer cord tyres, Michelin butted tubes one spare; £35 10s., or sell separately.—3,887, *The Motor Cycle* Offices, Coventry.

IVAN B. HART DAVIES wishes to sell his End-to-end Triumph, 85 by 88 engine, two gallon tank, special handle-bars, spare butt-ended tube, all tools and spares, lamp, horn, etc., run 2,000 miles, as good as new; £40 cash.—Apply, I. B. Hart-Davies, Bank St., Rugby.

3½h.p. Humber, two-speed and free engine, new last June, since overhauled by makers and fitted with 1910 improvements, including Druid spring forks, plain connecting rod bearing, new footboards and control, large belt pulleys, complete with lamp and tools, Dunlop tyres (unpunctured); £34, or nearest; bargain.—G.S., 37, Northumberland Rd., Coventry.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

3½h.p. Rex, spring forks, spring seat-pillar, long handle-bars, new Continental tyre; £7, or exchange with cash twin or tricar.—Dyball, Raynham, Norfolk.

5-6h.p. Twin Rex, magneto, two-speed, new, only run 100 miles; extraordinary bargain, £35, or near offer.—Mann, Egerton, and Co., Ltd., Norwich.

3½h.p. Matchless (cyl. 85 by 88), late 1908, first-class order, had very little use; owner using car principally; magneto in tank, R.C.M. steel studded tyres both wheels, Brooks latest padded saddle, Matchless spring forks and stand; £20.—Mayor Eggington, Leighton Buzzard.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

MINERVA Lightweight, 1¾h.p.; exchange for push bike, or sell cheap.—Devey, Wassell Grove, near Stourbridge.

1908 N.S.U., 3½h.p., magneto, B. and B. handle-bar control, spring forks, condition and running order perfect; £22.—Ault, Usk, Mon.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

2¾h.p. Minerva, racy pattern, nearly new engine; £8 10s.—Smith, Luther Cottage, Odd Down, Bath.

TRIUMPHS, 1910 models in stock; order at once for early deliveries.—Sole Agent, Longman, Fisherton, Salisbury.

1909 Triumph, seven months old, run 1,500 miles, new tyre back wheel, perfect condition; £32.—G. Lathbury, H.M.S. Britannia, Portsmouth.

DOUGLAS, 1909, spares, etc., guaranteed first-class condition; any trial; approval; £28.—"Auchencairn," Worcester St., Gloucester.

3½h.p. Motor Cycle, Humber engine, belt driven; will take £15 cash; a bargain.—Write, further particulars, Radford, Fareham, Hants.

BARGAIN!—5½h.p. N.S.U., two-speed, spring forks, Montgomery sidecar, hardly used, all spares; nearest cash offer £38; exchange Triumph entertained.—Roy Walker, Pangbourne, Berks.

MOTOR BICYCLES FOR SALE.

3-3½h.p. Kelecom, engine vertical, Clinchers, Stanley-Dermatine, footboards, accumulator, in running order; £5 10s., or exchange furniture.—Readings, Wokingham Rd., Bracknell, Berks.

3½h.p. Motor Cycle. Fafnir engine, built in B.S.A. frame, Dunlop tyre, 28 by 2¼, front rim and belt rim brakes, stand and carrier, two accumulators, in perfect condition; price £10 10s.—W. Breeze, 103, Victoria Rd., Aldershot.

1909 Triumph, in excellent condition, detachable footboards, Autoclipse lamp, generator, horn, mirror, spare belt and case, three butt-ended tubes, all spares and tools; must sell; best offer over £31.—3,886, *The Motor Cycle* Offices, Coventry.

50 Guinea Magneto 1909 5-6h.p. F.N., condition perfect, including spares, footrests, extra brake, not done 2,500 miles; Motosacoche, bought April, 1909, accumulator, £5 spares and extras, not done 800 miles, condition as new; new Cowey speed indicator, cost £4 4s.; one new R.O.M. non-skid, 26 by 2½, cost £2 16s. 6d.; Continental, 26 by 2¼in., not unpacked; excellent 19s. oil heating stove; all guaranteed; buying car.—Dr. Alderson, Winchester Rd., Southampton.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

BARGAIN Motor Cycles.

3½h.p. Minerva; £15 15s.

2½h.p. Kerry; £8 10s.

2½h.p. Minerva; £8 10s.

TWO-SPEED Tricar; £12 10s.

NUMEROUS Others.

BUNTING, Wealdstone.

1909 Twin Rex de Luxe, only done 1,500 miles; lowest £35.—28, Lavender Rd., Enfield.

TRIUMPH, 1907 model, in grand condition, and fully equipped; £25.—Bunting, Wealdstone.

PHELON and Moore, 3½h.p., 1909, as new, and sidecar; £48.—Write, 85, Kingsgate Rd., Kilburn.

J.A.P.-MATCHLESS, 3½h.p., being thoroughly overhauled; £25.—8, Earls Terrace, Kensington.

SALE or exchange 1¾h.p. Clement-Garrard, new belt, brass tank; £5 10s.—172, Ardgowan Rd., Catford.

8h.p. Twin Minerva, magneto, latest type, spring forks, as new, very fast; £35.—128, High Rd., Tottenham.

G.A.M.—5h.p. 1906 Twin Rex, cantilever seat, spring forks, excellent condition and running order; £16.

G.A.M.—2¾h.p. N.S.U., two-speed gear, magneto, perfect running order, and first-class condition; £15 10s.

G.A.M.—3h.p. Quadrant, spray carburetter, spring forks, excellent running order; a bargain. £5.

G.A.M.—6h.p. Rex Litette, 1908, twin tyres, all in good condition, machine in perfect running order; £35.

G.A.M.—3h.p. Magneto Lincoln Elk, 1909, nearly new; £18 1s.

G.A.M.—5h.p Rex de Luxe, two-speed gear, 1909 model, nearly new; sacrifice £36.

GODFREY, Applebee, and Micklewood, The Broadway, Muswell Hill, N. 'Phone, 933 Hornsey. Large stock of second-hand machines.

1908 Triumph, perfect, guaranteed; £30.—Surridge, 69, Loughborough Park, Brixton, S.W.

3½h.p. Rex, splendid condition; accept £15, or offer.—Apply, F. Matthias, 76, Battersea Rise, London, S.W.

WHY do Nye's sell so many machines? They give satisfaction. Try them.—69, Leather Lane, Holborn.

N.S.U. Lightweight, late 1908, magneto, excellent condition; a bargain, £12.—Pearce, 70, Lysia St., Fulham, S.W.

3½h.p. Motor Bicycle, also forecar for same, splendid condition; £9 9s. — Phillips, 86, South End, Croydon.

MINERVA, 3½h.p., £13; Fafnir, 3h.p., £11; both low, good condition.—Pike, Barossa Terrace, Church St., Chelsea.

2¾h.p. F.N., Vindec Special, excellent condition; £12, or nearest offer.—Alexander, 67, Muirkirk Rd., Catford.

3½h.p., Chater-Lea, Continentals, only had road trial; £16, bargain.—Motor, 94, Markhouse Rd., Walthamstow, N.E.

VINDEC Special, 1908, 5h.p., Bosch, Truffaults, Roc two-speed, handle starting; £28.—41, Ashford Rd., Cricklewood, N.W.

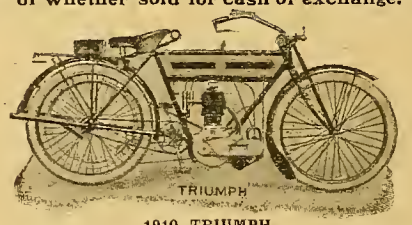
1910 Triumphs and 1910 Humbers in stock; your present machine and cash for one.—128, High Rd., Tottenham.

MAUDES' MOTOR MART

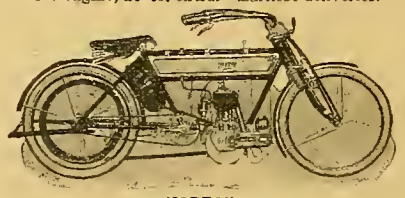
HALIFAX AND LONDON

Sole Yorkshire Agents for the T.A.C. Motor Cycle de Luxe.
Sole London Agents for the NORTON.
Sole Halifax Agents for TRIUMPHS, DOUGLAS, PHELON MOORES, BRADBURYS, etc., etc.

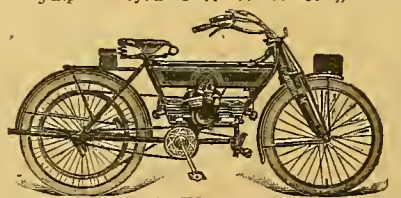
Every 1910 model we sell or offer for sale carries the makers' full guarantee regardless of whether sold for cash or exchange.



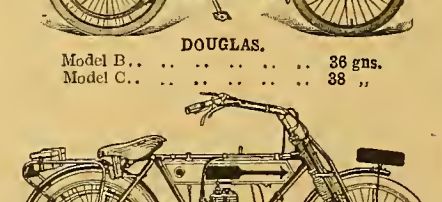
1910 TRIUMPH.
Standard model £48 15
Tourist Trophy model £50 0
Free engine, £6 6s. extra. Earliest deliveries.



NORTON.
3½ h.p. single cylinder .. .. 43 gns.
4½ h.p. single cylinder .. .. 45 ,,
5 h.p twin cylinder .. .. .. 53 ,,



DOUGLAS.
Model B.. .. .. 36 gns.
Model C.. .. .. 38 ,,



Bradbury 3½ H.P.
1910 Standard model £46 0
Delivery from Stock.

T.A.C. Motor Cycle de Luxe.
Standard model .. .. 60 gns.
Wheel-steering .. .. 63 ,,
Wheel-steering de Luxe .. .. 70 ,,
Discount to cash buyers.

HUMBER
1910 3½ h.p. two-speed £50 0
1910 3½ h.p. Standard £45 0
Twin Premier 3½ h.p., maker's price 50 gns. Our price £48

LISTS POST FREE FROM
MAUDES' MOTOR MART,
Powell Street, HALIFAX.
'Phone: 433. Telegrams: "Petrol, Halifax."
136, Great Portland Street, LONDON, W.
'Phone: 552, Mayfair.

MOTOR BICYCLES FOR SALE.

VOTE for Wauchope's for fair dealings, exchanges, etc. —Wauchope's, 9, Shoe Lane, Fleet St., London, E.C., off Ludgate Circus.

EAGLES.—3½h.p. N.S.U., low built, spring forks, magneto ignition, excellent condition; £18 10s.; approval.

EAGLES.—Triumph, 1908, in perfect condition, Clincher rubber studded, Autoclipse lamp, all accessories; £31 10s.; approval.

EAGLES.—N.S.U. 2¾h.p. Twin Lightweight (1908), Bosch magneto, M.O.V., spring forks, under-geared pulley, as new; £30.

EAGLES.—3½h.p. N.S.U., 1908, magneto ignition, spring forks, 1in. Shamrock belt, excellent condition; £23; approval.

EAGLES.—N.S.U. 6h.p. Twin, new last May, 1908, specification, Bosch magneto, spring forks, 1¼in. Shamrock belt, 26 by 2½ Palmer tyres, two-speed gear and free engine, with Millford sidecar, perfect condition; £46; any trial; this combination has been awarded two certificates in A.C.U. Quarterly Trials.

EAGLES and Co., High St., Acton, West London, District Agency for N.S.U.'s, 1910 models in stock, two-speed gears, spare parts; liberal allowances for machines in part payment. Telephone, 556 Chiswick.

KERRY, 2½h.p., new R.O.M. tyres, new belt, two new accumulators, splendid condition; £9. — Fenn, Bridge, Kent.

3½h.p. Fafnir, very low, splendid condition, spring forks; nearest offer over £12.—15, Connaught Rd., Leytonstone.

3½h.p. Roc, with clutch, magneto, handle-bar control and exhaust cut-out, near new, £20; sidecar £3 extras.—Green, Reginald Rd., Bexhill.

2¾h.p. Kerry, light, low, perfect, nearly new; £7 10s. —German, 3, Coleraine Cottages, Fortis Green, E. Finchley, N.

4h.p. Stevens, Osmonde four-speed, complete with coach-built sidecar; £20.—16, The Triangle, Bishop's Rd., Fulham.

3½h.p. Minerva, good climber, smart appearance, splendid condition; genuine bargain, £10.—George, grocer, Luton, Chatham.

1909 Twin Rex de Luxe, with sidecar, new tyres, Whittle belt, free engine; £32, or offer.—Sparrow, 6, King St., Cheapside, E.C.

1909 5h.p. Special Twin Rex, enamelled grey, condition perfect, with spares; private owner; bargain £30.—16, Haverstock Hill.

SCOUT, 2¼h.p., light, powerful, splendid little machine; must clear; great sacrifice, £5 10s. — 619, Lea Bridge Rd., Leyton.

MOTOSACOCHE, had little wear, low frame, June 1908; £18 10s., or exchange.—Humphrey, 22, Brighton Rd., Horsham.

£12, or nearest offer.—Midget Bicar, in good condition, 3h.p. Fafnir, two good accumulators.—Back, 25, Moresby Rd., Upper Clapton.

N.S.U., 1908, 3h.p., magneto, M.O.V., fine hill climber, fast, reliable as clock; £15 to clear.—Stanton, 619, Lea Bridge Rd., Leyton, London.

1908 N.S.U., 3½h.p., two-speed gear, magneto, Palmer back, Continental front tyres; £22, or near offer.—Legge, 48, Bromar Rd., Denmark Park, S.E.

LIGHTWEIGHT Magneto Rex, 2¼h.p., in splendid condition; any engineer's opinion; £16; owner bought tricar.—Mathews, 71, Beckenham Rd., Beckenham.

3h.p. Fafnir, Chater-Lea frame, in perfect condition, several spares; £13, or near offer.—W. Wheal, 1, Wycliffe Rd., Lavender Hill, S.W.

ROC Clutch and Two-speed Geared 3½h.p. Motor Cycle, spring forks, H.B. control, low, just overhauled, must sell; £16.—619, Lea Bridge Rd., Leyton, London.

T.T. Triumph, 1909 model, as new, Michelin tyres, very fast machine, complete; 36 guineas. — See below.

5h.p. Vindec Special, Truffault forks, Peter-Unit studded tyres, two-gallon tank, fast, reliable machine; £25, a bargain.—See below.

1908 Triumph, very fast and powerful, Clincher tyres, rubber studded on rear; £28.—See below.

1908 5h.p. Twin Vindec Special, Truffault forks, B. and B. carburetter, handle-bar control, studded tyres on both wheels; a bargain at £25.—See below.

LAURIN-KLEMENT, 4h.p., twin, magneto, spring forks, 26in. by 2¼in. Continental tyres, fast, powerful machine; 18 guineas.—See below.

5h.p. Vindec Special, light model, Truffault forks, fast and powerful machine; 18 guineas. — See below.

GENUINE 3h.p. Quadrant, excellent condition, spring forks, B. and B. carburetter, Whittle belt; 15 guineas.—See below.

1910 Triumphs in stock; delivery at once; no waiting; £48 15s.—Pond, 349, West End Lane, Hampstead.

TWIN Vindec, gold medal machine, End-to-end, magneto; £25; been re-enamelled and plated, etc.—57, Park Rd., West Dulwich.

DOUGLAS, 2¾h.p., 1909 model, as new, including spares; £20, no offers. — Write, A. Zerenner, Laurence Pountney Hill, E.C.

MOTOR BICYCLES FOR SALE.

TTLES.—F.N., 5-6h.p., latest type, 4-cyl., magneto, H.B. control, spring forks, practically new, ished; sacrifice £32 10s.

TTLES.—F.N., 4½h.p., late model, 4 cyls., magneto, spring forks, new R.O.M. tyre, excellent heap, £25.

TTLES.—Rex, 5-6h.p., latest twin, de Luxe, magneto, Roc clutch, twin wheel, black finish, ew; £26.

TTLES.—Triumph, 3½h.p., late 1907, magneto, H.B. control, spring forks, all accessories, like rgain, £25.

TTLES.—Minerva, 3h.p., £7 15s.; also 2½h.p. Minerva, £6 15s.—Wittles Motor Exchange, ill. 'Phone, 711 Post, Wimbledon.

U Want Bargains in second-hand motor cycles can get them at Wauchope's, 9, Shoe Lane, , London (just off Ludgate Circus).

Rex, Brown and Barlow carburetter, adjustable ulley, Clincher tyres, nearly new, new belt; £12. 4, White Horse Lane, Stepney.

AER-LEA Frame, M.M.C., 3½h.p., handle-bar trol, first-class condition, fast, up-to-date; £18. e, The Briars, Winchmore Hill.

White and Poppe, magneto, Amac handle-bar ontrol, excellent condition; £16 10s.—A. Jones, 92, Southhill Park, Hampstead.

U Want bargains in second-hand motor cycles can get the at Wauchope's, 9, Shoe Lane, , London, E.C., just off Ludgate Circus.

h.p. Lightweight, magneto, spring forks, footsts and brake, geared pulley, in excellent con- 15.—Page, 74, East Hill, Dartford, Kent.

RVA, 3½h.p., excellent condition, will take sider, all accessories; £10, or near offer; call any Boscombe Rd., Shepherd's Bush, London.

, 3½h.p., Palmer tyres, Brown-Barlow carbur- r, splendid condition, very fast, £13 10s.; also forecar, £3 5s.—20a, Lodge Rd., Sutton.

NSTEAD for great bargains, new and second- nd, gradual payments taken on any machine, . — Only address, 5, Heath St., Hampstead. 8 P.O.

NSTEAD (£15).—1909 Model Motosacoche, ring forks, splendid condition; 1909 Triumph, dition, only £33, bargain.

NSTEAD.—2¾h.p. Douglas, magneto, and spring s. splendid condition; £28, with accessories; s.U., £13.

NSTEAD (£25). — F.N., 4-cyl., 4½h.p., splendid dition, with all aecessories, late model.

NSTEAD.—Sole London and district agents for coln Elks, all models in stock; special price

NSTEAD.—Are now showing all the leading 1910 dines; exchanges entertained; delivery from waiting.

NSTEAD.—Triumphs, 1910, in stock; Rexes, glas, Moto-Reves, F.N.'s, no waiting; gradual taken.

NSTEAD.—Triumph, 1907, new tyres, splendid dition; £27; Triumph, 1909, new condition, glas, 1909, £27.

NSTEAD.—5-6h.p. F.N., 1909, splendid condi- all accessories, £30; 3½h.p. Fafnir, Chater-Lea 13.

NSTEAD.—3½h.p. 1909 magneto Minerva, £28; 9 Lincoln Elk, magneto, new condition, £20.

NSTEAD, 5h.p. twin Peugeot, Chater frame, new s, N.S., very low; bargain, £18.

NSTEAD.—Minerva, 2h.p., good order, £4 15s.; mber, 2h.p., £4 10s.; Humber, 2¾h.p., £5 10s. 26, P.O.

Magneto Lightweight, cost £34, perfect condi- appearance; cash offers; give cash for Tri- small 2-seater (modern).—30, Smith's Terrace, .., S.W.

6h.p., 1909 model, perfect condition, tyres, accessories, etc., complete; on view 106, Gt. St.; £35.—Preston, St. George's House, East- ner leaving for Australia.

Motor Cycle, just thoroughly overhauled, foot- ards, brass tank, French grey, smart, lowest unning, guaranteed; sacrifice £9 15s.—Myers, on Terrace, Victoria Park, London.

pecial Twin Rex de Luxe, two speeds, ridden out 1,200 miles, numerous improvements, in- 10 timing gear, splendidly tyred, R.O.M. back, ion throughout; £38, no offers considered.— Lambeth Rd., London, S.W.

VA, 1908, 3½h.p., magneto, spring forks, non- ds, adjustable pulley, splendid condition; £20. mure Rd., Mare St., Hackney, London. Great Must sell.

win Rex, grand machine for sidecar, £16, t cash; 2¾h.p. racer, still holds four records, up racing.—C. E. Bennett, 3, Morgan St., own, London, E.

Stevens, Chater, torpedo brass tank, perfect dition, tyres as new, just been thoroughly re-enamelled; bargain, £20, or near offer.— Edgington Rd., Streatham.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

BARGAINS IN 1909 REXES. 1909

1909 3½ h.p. Tourist REX £38
1909 3½ h.p. REX DE LUXE, 2-speed £48
1909 5 h.p. REX DE LUXE, 2-speed £50
Compare these with 1910 prices.

1910 REXES. Liberal Exchanges. Deliveries from stock.

SIDECAR MACHINES.

1909 5 h.p. TWIN REX, nearly new £32 10
1908 Twin Tourist REX, magneto £26 10
1908-9 four-cyl. F.N., fine condition £25 10
1908 REX DE LUXE, magneto £32 10
1907 Twin Magneto REX, spring forks £20 0
1907 5½ h.p. Twin REX, spring forks £16 16
6 h.p. Twin N.S.U., magneto, 2-speeds £24 10
7-8 h.p. Twin MINERVA and N.S.U. Sidecar, very smart lot £29 0
Twin WERNER Lightweight, spring forks £12 10
5½ h.p. REX DE LUXE, Roc clutch £25 10
6 h.p. Twin ANTOINE, extra good £18 10
Twin CLEMENT, spring forks, spray £9 14

"POPULARS."

3½ h.p. Magneto Triumph, brand new £43 10
1909 3½ h.p. Magneto REX, nearly new £32 10
1909 3½ h.p. REX Speed King, as new £35 0
1909 3½ h.p. two-speed HUMBER £32 10
1908 3½ h.p. Magneto REX, spring forks £24 10
1908 3½ h.p. 2-speed REX DE LUXE £30 0
1908 3½ h.p. N.S.U., spring forks, as new £26 10
4 h.p. ROC, magneto, clutch, good £24 0
1908 3½ h.p. Mag., N.S.U., spring forks £21 0
4 h.p. ANTOINE, high tension magneto £18 18
3 h.p. Magneto SIMMS, 2¼in. Palmers £16 10
3 h.p. SINGER, V belt, H.T. magneto £16 10
1907 3½ h.p. QUADRANT, spring forks £17 10
3 h.p. ZEDEL, vertical, 26in. wheels £13 0

SPECIAL BARGAINS.

3 h.p. HUMBER, spray, free engine £10 10
3 h.p. BRADBURY, long and low £10 0
1906 3½ h.p. REX, spring forks, M.O.V. £15 10
4 h.p. STEVENS, H.B. control, band brake £13 10
3 h.p. CLYDE, magneto ignition £14 10
½ h.p. KERRY, light and low, spray £9 10
3½ h.p. REX, 22 frame, re-enamelled £7 10
3 h.p. BEESTON-HUMBER, spray, chain drive .. £9 10
3½ h.p. WERNER, used with passenger £13 10
2¾ h.p. Light ARIEL, low build £8 15
2¾ h.p. LLOYDS, vertical, spray £6 0
2 h.p. F.N. SAROLEA, untested £4 5
5 h.p. Twin REX, with Mills-Fulford Forecar, spot cash bargain £11 10
Monster list on application. Cash offers considered.

Five 5½ h.p. Twin Rexes, spring forks, long bars, low frames, aluminium finish, blue lines, 26in. wheels. **£16 10s.**
Grand Sidecar machines. EXCHANGES.

EASY PAYMENTS.

5/- weekly and reasonable deposit secures any of these machines. All tested and ready for the road:

2¾ h.p. Bradbury .. £10 0
3 h.p. Clyde £15 0
3 h.p. Ariel £10 0
3 h.p. Humber. .. £10 0
3½ h.p. Rex £10 10
2¾ h.p. Lloyd's £7 10
3½ h.p. Rover £14 0
2¾ h.p. Kerry .. £9 10
2¾ h.p. Ariel .. £9 13
2¾ h.p. Werner .. £8 10
3½ h.p. Werner £13 10
3½ h.p. M.M.C. £9 10
2 h.p. Humber £8 10
3 h.p. Bradbury £10 10

CARS AND TRICARS.

Any reasonable exchange considered. Room wanted.
Brand new O.T.A.V. voiturette, cost 102 guineas, hood, lamp, etc £60 0
8-10 h.p. two-cylinder FORD car £32 10
10-12 h.p. two-cylinder BRUSH car £39 10
4½ h.p. BRADBURY w.c. tricar. £35 0
5½ h.p. w.c. two-speed REXETTE £24 10
5½ h.p. Twin Rex, MILLFORD Forecar £14 10

MISCELLANEOUS.

New B.&B. carburetter, H.B. control £1 5 0
New AMAC " " £0 19 6
New large size LYCETT'S motor saddle £0 9 6
TRIUMPH adjustable pulley £0 7 6
MABON clutch, fits Triumph £1 19 6
Cycle coupler £0 10 0
N.S.U. 2-speed and free engine £2 15 0
New spring forks, fit 1909 or 1910 Rex £1 9 6
MILLFORD sidecar, 26 x 2¼ £3 10 0
MONTGOMERY, seats two, nearly new £4 5 0
New DE LUXE sidecar, special fittings £5 17 8

MOTOR BICYCLES FOR SALE.

THE Eastern Garage Company, 418, Romford Rd. Forest Gate, are agents for all leading makes of motor cycles, 1910 Triumphs, Rex, P. and M., Douglas Kerry-Abingdons in stock. Second-hand machines taken in part payment. The following selection are excellent value:

1909 Rex Tourist, 3½h.p., new, J.A.P. lubricator, latest improvements; £35.—Below.

1909 Tourist Rexes, 3½h.p., with all accessories; £29 each.—Below.

1906 Rex, 3½h.p., spring forks, in guaranteed condition; £12.—Below.

1909 Triumphs, with first-class accessories; £35 each. —Below.

1908 Triumph, Brooks padded saddle, guaranteed perfect; £29.—Below.

1907 Triumph, tyres and belt as new, perfect order; £22.—Below.

1909 J.A.P., 4h.p., M.O.V., J.A.P. adjustable pulley, Bosch magneto, Chater frame and spring forks, Palmer tyres, H.B. control, not done 300 miles, including accessories; £32.—Below.

1908 J.A.P., 4h.p., Bosch magneto, Chater frame, Druid spring forks, footboards, studded tyres, Autoclipse lamp, etc.; £26.—Below.

1909 F.N., 4-cyl., F.N. footrests, H.B. control, R.O.M. combination tyre, with nearly new sidecar; £35.—Below.

1909 Peugeot, 5h.p., Chater, adjustable pulley, R.O.M. and Palmer cord covers, Davison's gauges and fillers, F.R.S. lamp; £20.—Below.

1906 Minerva, 2¾h.p., Bowden H.B. control, perfect order, guaranteed; £12.—Below.

1907 De Dion, 2¾h.p., spring forks, rubber studded tyre, light low machine, splendid condition, spares; £12.—Below.

IN addition to the above the Eastern Garage Co. have a number of machines at prices ranging from £7. Please favour us with a visit at 418, Romford Rd., Forest Gate, or telephone, Stratford 10. Telegrams, Egaraco, London.

1909 Triumph, spring seat-pilar, lamp, horn, carrier, tools and spares as supplied, also two new Rich's tubes, belt, and Dunhill's motor clothing; inclusive price £42 10s.—Lieutenant Leslie, R.N. College, Greenwich.

MOTOSACOCHE, 1908, accumulator model, with all accessories, splendid condition; £16.—On view at British Electric Equipment Co., 61, London Rd., Twickenham.

3½h.p. Rex, footboards, spring forks, H.B. control, new tubes, engine re-bushed, new belt, new cylinder, lamp, horn, stand, excellent machine; £15.—Latter-a Baldock.

NEW Trafalgar, 5h.p. Peugeot, 2¼ Palmer tyres, with special sidecar, will take a lady and child side by side; a bargain, £24.—Harding, 3, York Mews South, Baker St., W.

3h.p. Humber, powerful, fast hill-climber, chain, low, long bars, splendid condition throughout, with sidecar, £10; separate, £7 15s. and £3 5s.—45, Charles St., Stepney.

£7.—Quadrant, 2h.p., surface carburetter, tyres in first-rate condition, spring footrests, luggage carrier, stand, and toolbag, ready for the road; no offers. —Heathcote, Chapman's Chemical Works, Silvertown, E.

ELEPHANT Motor Mart, sole London agents for the All-British Coventry Arno, from stock at £45; motor bikes, tricars, accessories, at low prices; exchanges; fair dealing.—10 and 12, Elephant Rd., London.

F.N., 4-cyl., 4½h.p., with Manning tricycle attachment, perfect condition, magneto, Palmer cords, lamp, horn, tools, spares; cost £62, take £27, offer.—A. Fort, 53, Hallam St., Portland Place, W.

INSPECT the largest selection of all kinds of motor cycles ever witnessed; reasonable terms, cash, or exchange; splendid bargains from £8 10s.; now is the time to buy.—Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

MATCHLESS, 3½h.p., magneto, late 1908, J.A.P. engine and automatic carburetter, Druid spring forks, Cowey speedometer, R.O.M. tyres, tools, and spares, splendid condition; £29, or nearest offer; going abroad.—Chaplin, 76, Brixton Rd., S.W.

3h.p. Triumph, coil and accumulator, good condition, recently overhauled and re-bushed throughout, carefully used, guaranteed in perfect running order, R.O.M. back, spares; £17, lowest.—Edward Cox, 164, High St., Guildford.

5-6h.p. Chater-Sarolea, 26in. Palmer cord, spare tube, leggings, coat, valves, lamp, horn, guaranteed perfect, little used, £25, close offer; 2¾h.p. Chater-Minerva, tyres and belt new, splendid condition, £10; 3½h.p. magneto Rex, handle-bar control, £12.—Dr. Warren, Enfield Highway.

BARGAIN; going Rhodesia February; must sell.—3½ h.p. standard Minerva, September, 1907, first-class condition throughout, nearly new accumulators, spring forks, Price's stand, usual accessories; £12.—Day, 2, Hill St., Richmond, Surrey.

3½h.p. Rex, Brown and Barlow carburetter, handle-bar control, new R.O.M. combination non-skid back, two spare tubes, Advance adjustable pulley, all accessories and spares, guaranteed perfect running order; offers; seen any time.—S. Lambert, 14, Tite St., Chelsea, S.W.

MOTOR BICYCLES FOR SALE.

CLEARANCE.—2¾h.p. Kerry, £8 10s.; 6h.p. twin Antoine, £17 10s.; 2¼h.p. Brown, £8 10s.; 2½h.p. Quadrant, £4 10s.; 2¼h.p. J.A.P., £8 10s.; 2¼h.p. Phœnix, magneto, two speeds, £14 10s.; exchanges; please call, or write; trials.—128, High Rd., Tottenham. 'Phone 1982, Tottenham.

1908 Triumph (August), with 1909 Mahou free engine clutch, Cowey speedometer, two belts, two toolbags, with full set tools and spares, Clincher tyres back, one studded, good condition, three-note horn, appearance of machine very good; £38.—3,885, *The Motor Cycle* Offices, Coventry.

1908 Zenith-Gradua, perfect condition, J.A.P. engine, identical machine which won Coventry and Barnsley Hill-climbs, new tyres, spare handle-bar, rigid, and spring forks; also Zenith Gradua frame, two forks, all complete, less engine, same won four prizes Coventry Hill-climb; also Zenette Gradua, 3h.p. Fafnir, perfect condition, new tyres, magneto, all guaranteed, perfect condition; trial given willingly.—Exshaw, Pyrford Lodge, Pyrford, Surrey.

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

TWIN Vindec, two-speed gear, free engine, Millford rigid sidecar, both in perfect order; cash offers; together or separate.—Dan Guy, Weymouth.

SECTION X.

Scotland.

1908 Triumph Motor Cycle, in perfect condition, as new.—McDougall, Harviestoun Kennels, Dollar, N.B.

F.N., 1¾h.p., in first-class condition, gone only 1,600 miles; £23. — Dr. Hotchkis, Dykebar Asylum, Paisley.

MATCHLESS, 3½h.p., Stanley Show model, complete, automatic hub, unridden, excellent reason for sale; £44.—Tolfree, 47, Falcon Av., Edinburgh.

MOTOR Bicycle, 3½h.p., long handle-bars, low seat, handle-bar control (new tyres and belt), accessories, first-class order; £18; trial.—Tweeddale, jun., Rockville, North Berwick.

SCOTLAND'S Largest Motor Cycle Firm.—Rex, V.S. Indian, Moto-Reve, Phelon and Moore, Zenith, Douglas, Roc, Griffon; we stock all these, and can supply any other make.—Alexander's Motor Exchange, Lothian Rd., Edinburgh.

RELIABLE Bargains at Alexander's!—2¼h.p. Minerva, £8; 3h.p. Clyde, £10; 3½h.p. Wolf, £13; 2¾ h.p. Griffon, £14; 3h.p. Triumph, £15; 5h.p. Rex, almost new, £33; 3½h.p. Rex, this machine proved the best hill-climber in Scotland, £29; 5h.p. Vindec, £29; 5h.p. O.B., £23; 5h.p. Griffon, £25; sidecars, forecars, and tricars, also 20 more motor bikes at bargain prices; send for list.—Alexander's Motor Exchange, 110, Lothian Rd., Edinburgh. Tel.: No. 5020.

TRICARS FOR SALE.

7-9h.p. Peugeot Tricar; sell, or exchange motor cycle.—61, Hartfield Rd., Wimbledon.

5h.p. Mototricontal, two speeds, free, coach-built voiturette, tyres as new, fast, powerful; £226.—Marks, Crynant, Glam.

6h.p. Twin, air-cooled, open frame, coach seats, three speeds, wheel steering; bargain, £17.—E. J. Gittins, Oswestry.

REXETTE, 1907, 10h.p., 2-cyl., 3-seater, live frame, faultless; £35, motor bike part.—48, Walton Rd., East Molesey.

3½-4h.p. Phelon and Moore Tricar, new condition, ill-health reason for disposal; offers.—Jackson, 39, Warwick Rd., Batley.

4h.p. Phœnix Tricar, two-speed, perfect; exchange for 1908 or 1909 Triumph, or sell £30.—Lea, 6, Livingstone View, Tynemouth.

TRICAR, complete, less engine and tyres, wheel steering, open frame, two-speed, chain drive, going very cheap.—39, Cecil Rd., Norwich.

5h.p. Tricar, twin engine, Sarolea, genuine; giving up riding; sacrifice at £15.—Matthews, stationer, Lower Mortlake Rd., Richmond, Surrey.

4h.p. Antoine Tricar, open frame, chain drive, wheel steering, two accumulators, tyres new, excellent running order; sacrifice £18.—147, High Rd., Wood Green.

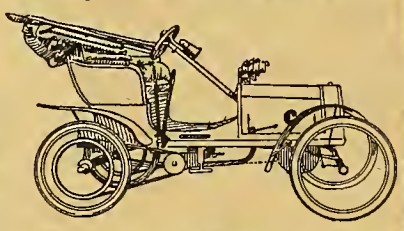
4½h.p. Rover Water-cooled Tricar, two speeds, free engine, clutch, upholstered forecar, splendid condition; sacrifice £15 15s.—Phillips, 86, South End, Croydon.

9h.p. Riley Tricar de Luxe, latest type, in perfect condition, lamps, and all accessories; 50 guineas; guaranteed perfect.—H., 6, Queen Anne Mews, Cavendish Sq., W.

5h.p. Abingdon Tricar, two speeds, not done 200 miles, faultless; £38, or magneto motor cycle part exchange; sound reason for selling.—Camery, Doynton, Bristol.

10-12h.p. Lagonda Tricar, water-cooled, three speeds and reverse, 3-seater, wheel steering, 3in. heavy car tyres, lamps, and spares, perfect condition; offers; examination and trial.—W. Toms, Heath View, Banstead Rd., Caterham.

5 only. Brand New 1909



3½ h.p. O.T.A.V. VOITURETTES, complete with hood, lamps, tools, and spares, £60 each.
Magneto ignition, £5 extra.

CASH, CREDIT, or EHCHANGE.

1909 5 h.p. Twin REX, fine machine	£32 10
1910 6 h.p. CLYNO, brand new, offers wanted.	
6 h.p. N.S.U., magneto ignition, very low ..	£23 0
1910 3½ h.p. REX, new, offers wanted	
1909 3½ h.p. REX, R.O.M. tyres	£30 0
1909 3½ h.p. HUMBER, two-speed model ..	£32 10
1910 3¾ h.p. Twin PREMIER	50 Gns.
1909 6 h.p. Twin REX, quite new	£36 0
6 h.p. Twin REX, Bosch magneto, very smart	£20 0
1908 N.S.U. Lightweight, magneto.....	£17 0
3½ h.p. 1908 TRIUMPH, magneto ignition..	£29 0
One ditto, fitted Roc two-speed gear	£35 0
1908 6 h.p. ROC, two-speed and clutch ..	£30 0
5 h.p. Twin N.S.U., magneto, very low....	£21 0
1908 REX DE LUXE, clutch, etc.	£28 0
1908 Twin REX, magneto, very low	£25 0
3½ VINDEC, magneto, Nala two speeds ..	£19 0
3¾ h.p. GRITZNER, 1908, magneto ignition	£17 0
1908 Magneto REX, fine condition	£18 0
5½ h.p. TWIN REX, a beauty.....	£16 10
3½ h.p. REX, M.O.V., spray.....	£10 10
3½ h.p. 1907 REX, lovely goer	£15 15
3½ h.p. low REX, H.B. control, M.O.V. ..	£11 0
6 h.p. Twin REX, and sidecar	£20 0
5½ h.p. REXETTE, two speeds, fine machine	£24 0
6 h.p. N.S.U. and Sidecar, magneto.....	£27 0

FARRAR'S "HALIFAX" SIDECARS.

£4 17s. 6d. complete with best tyres. Guaranteed 12 months. An ideal winter attachment, quite rigid. Good, stylish, and comfortable. No sideslip. Beautifully sprung on double C spring. Approval anywhere. Send for descriptive circular. Don't buy until you have seen ours.

STOCKTAKING BARGAINS. First Come First Served.
To make room for new 1910 machines we offer the following clearance lines:

2¼ h.p. Humber	£3 17 6
3 h.p. Rex	£4 17 6
3½ h.p. Excelsior.....	£4 17 6
3⅝ h.p. Dux	£4 17 6
2¾ h.p. Stevens	£4 5 0
2 h.p. Rex	£3 5 0

All guaranteed in running order and tested.
CARRIAGE FREE. For 5/- extra we will deliver any of the above carriage free to your own door. Lamp, horn, and toolbag are included in the above.

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Clarendon ..	£9	3½ h.p. Humber ..	£9
3½ h.p. Rex	£9	3½ h.p. Rex, M.O.V.	£11
3½ Centaur, M.O.V.	£9	4 h.p. King	£9

ACCESSORIES, Etc. Get my List. POUNDS SAVED.

	s.	d.
28 x 2 or 2¼ Dunlop Wired Covers.....	11	6
Lycett's B Tool Bags, shop soiled, each	4	6
Smaller Motor Cycle Bags, shop soiled, each..	2	6
"Hella" Gas Lamps with separate generator	14	6
"Premier" Gas Lamps with separate generator	12	6
"Camel" V Belting, ¾in. or 1in., per foot....	1	3
Latest pattern Plated Handle-bars, drop ends	5	6
Enamelled Mudguards, with stays, etc., pair	2	11
Three-note "Fanfare" Horns, very penetrating	7	6
Clincher Rubber-studded Covers, 26 x 2¼in., each, 29/-.		
Clincher Tubes, all sizes, with valves, 4/11 each.		
New Loop Frames for vertical engine, 30/- each.		
1909 Amac Carburetters, h.b. control, 19/6 each.		
1910 Brown & Barlow, ditto, 28/- each.		
Large Motor Cycle Saddles, to clear, 5/- each.		
Forecar Attachment, 26in. wheels, £4.		
2½ h.p. Monarque Engine, 35/-.		
Montgomery Sidecar, £3 15s.		
Premier High-tension Magneto, new, 59/6.		
Bosch ditto, ditto, twin-cylinder, new, £3 10s.		
Motor Cycle Frame, complete with wheels, tyres, and tank, very smart, £2 9s.		

High-class Machines Wanted. Cash Waiting.

E. FARRAR,

Albion Works, Square Rd., HALIFAX.
Telephone 919.

TRICARS FOR SALE.

RILEY, 9h.p., three speeds, reverse, water-cooled, spares, side doors, very powerful, grand condition, cost £150 1908, guaranteed; cash £70, bargain.—Brook head, Ilkley.

ROOM wanted, must sell; 8-10h.p. Rex tricar, 3-seat coach-built, wheel steering, two-speed, chain dri splendid condition; £38, or nearest offer.—38, Westga Mansfield.

GODFREY, Applebee, and Micklewood.—8-10h.p. B ette, perfect order throughout, two speeds, se three; £27 10s.—The Broadway, Muswell Hill. 'Phon 933, Hornsey.

4½h.p. Humber, coach-built, water-cooled tricar, t speed gear, handle starting, excellent hill-climb new Bates tyres, acetylene lamps, etc.; £27.—Hamilt 46, High St., Paisley.

REXETTE, 5½h.p., in sound order, painted coach gre lined red a month ago, like new; any trial; £ or exchange twin motor cycle and sidecar. — Halv motorist, Peases West, Crook.

9h.p. Singer Coach-built Tricar, water-cooled, th speeds forward and reverse, wheel steering, hea car tyres, condition as new; seen by appointment; £ —W.P.S., 15, Alpha Rd., New Cross, London.

6-8h.p. Water-cooled twin Stevens engine, open fra wheel steering, coach-built, three speeds and verse, Chater-Lea fittings and gear box, R.O.M. tact, new non-skid car tyre on back, condition as ne £45.—F. Dunham, Studley Rd., Luton.

14h.p. Etna Tricar, twin engine, De Dion parts, wa cooled, Chater-Lea, three speeds and reverse g chain transmission, prize winner of hill-climbing c petitions; seen at Wauchope's, where machine is stor £35.—Apply, 9, Shoe Lane, Fleet St., London, E.C.

HANDSOME 9h.p. Singer Tricar, painted Fre grey, three speeds and reverse, Smith's speedome and clock, every plated part of the machine nickel, run 500 miles, steel stud on back wheel, spare tyre tube, three headlights, and electric tail lamp; cost £2 will sell for £100. a bargain.—Powell, 14, Elder Crouch End.

5h.p. Twin-cyl. Light Tricar (Rex Triette), Bosch m neto, two-speed gear, in rear hub, Roc clut handle starting, cane forecarriage, footboards, spa 1¼in. Watawata belt, adjustable pulley, Brooks sad seat on Rex spring seat-pillar, complete with lamp, ho and spares, registered; can be seen in Midlands; p £40.—No. 3,883, *The Motor Cycle* Offices, Coventry.

SIDECARS AND FORECARS.

MILLFORD Sidecar, 28in. wheel, runs either rigid castor, extra wide basket.—Dr. Warren, En Highway.

RIGID Sidecar, good condition; must sell; a barga £2 15s., or best offer.—172a, Earlsfield R Wandsworth.

OUR Sidecars Talk. — New, with Michelin tyre new clearance), £5 5s.; perfectly satisfactory; second-hand, £3.—128, High Rd., Tottenham. 1982 T tenham.

NEW Rigid Sidecar, large comfortable body, Clin Dreadnought tyre, fit any machine; £6 10s.—La Barracks, Derby.

SIDECAR, 1909 Montgomery flexible, with apron non-skid attachment, 26 wheels, cane body.—Bi Aldenham, Watford.

SIDECARS, £4 17s.; baskets, springs, fittings; t supplied.—Middleton and Co., Watson St., New ton Green, London, N.

CHATER Forecar, 26 by 2, new Continentals, in condition; £3.—Williams, 313c, Guinness Bu ings, Pages Walk, S.E.

LIGHT Rigid Sidecar, left side, splendid conditi £2 10s.—Gelman, 3, Coleraine Cottages, Fo Green, E. Finchley, N.

LIGHT Forecar Attachment, splendid condition, b brakes, side stays, footboards, electric side lamps, Clinchers; £5.—Jennings, 4, Woodbine Terrace, Chat Place, Hackney.

J. DAVIS, Automobile Engineer, Barnsbury Or N., begs to inform readers that he is the inven and sole builder of the protected double-seated side illustrated recently in *The Motor Cycle*. This side with tiller steering, is the last word in comfort motor cycling. Particulars and prices on applicatio

OWING to the enormous success in the past of sidecars, we have been obliged to make a sepa company to take over the manufacture of Oakleigh s cars only, and will be known as Oakleigh Sidecars, 65a, Rosendale Rd., West Dulwich. Price £8. For week only we are fitting Clincher A Won 26 by 2½ t and, remember, genuine Chater-Lea fittings only in all our models.

DID You Visit the recent Stanley Show?—If you you have seen with admiration and heard the ch of unanimous approval of our new patent Homegar sidecar, which, together with the cycle, stand, and be wheeled about without detaching in the space of 26½in. Your own old sidecar converted into a H garaged one for £1 17s. 6d. Send us yours; no c required.—Bramson and Co., 5, Farleigh Rd., Stoke N ington, N.

In answering these advertisements it is desirable to mention "The Motor Cycle."

EXCHANGES

WELCOMED.

NY 1910 MAKE SUPPLIED.

REAL JAM.

19 3½ h.p. two-speed REX, new. What offers.
Twin REX DE LUXE, SOILED .. £49 10
V 1909 TRIUMPH, Mabon clutch £47 10
HUMBER, a clipper..... £35 0
p. N.S.U., two-speed, a BEAUTY.... £27 0
p. ROC, 1907, magneto, H.B. control .. £23 0
O-REVE, Druid forks, magneto, V belt £24 0
OSACOCHE, 1908 ..... £22 10
UMPH, 1906, vertical, like new £20 0
p. N.S.U., magneto, good tyres £18 0
GER, 3 h.p., late model, BELT DRIVE £18 0
OINE, 4 h.p., magneto £18 0
p. QUADRANT, a gem £17 10
p. ARIEL, M.O.V., 26in. wheels £15 15
X, 3½, 1906, spring forks, M.O.V. £14 10
DAYS, 2½, 26in. wheels, spring forks £11 0

FAITHFUL SLAVES.

CLEMENT, spring forks, Palmers .. £9 19
X, 3½, John-o'-Groat's model, 22in. frame £9 10
HUMBER, spray, clutch £7 10
HUMBER, good value £6 10
p. THOMAS, a real good'un..... £7 10
RRY, long bars, low seat £9 10
DRANT, 2 h.p., low, 26in. wheels £8 10
EIGH, 2 h.p., vertical £7 5
p. MINERVA, splendid value £5 18
UMPH-MINERVA, good order £5 19

"BIRDLIP" BEATERS.

Twin REX DE LUXE, NEW £51 0
3½ h.p. REX Speed King £37 10
X RACER, 24in. wheel, 60 M.P.H. £30 0
p. Twin REX, spring forks £16 16
p. MINERVA, 1908, suit sidecar.... £27 10
4-cyl. 4½ h.p., purs like a kitten £26 0

E SEND THESE ON APPRO.

"COLYTE" MIRROR LENS HEAD-LIGHT, 6-hour generator, Plated 19/6
est size THREE-NOTE HORNS 8/6
and Second-hand Accessory List on receipt of postcard. GET THIS—IT'LL PAY YOU.

HANDLE-BAR CONTROL CARBURETTERS.

Models B. & B., complete 25/-
Models Amac ,, ... 19/6
5/- for sound carburetters in exchange.
e Stock of 1910 models. 10% discount for cash

ST TYRES. FREE.

LL NEW, PERFECT, AND BEST MAKES.
2¼ 13/6; 26 × 2¼ 18/6; other sizes 13/6 each.
WIRED, 28 × 2. 13/6; 28 × 2½, 14/6.
SPECIAL LINE, 26 × 2¼ TUBES, 4/6.

£3 DEPOSIT, and balance 5/- weekly for any machine up to £12 value. OTHERS, terms on application.

WINTER RIDING

ide safe and pleasant by using one of **OUR SIDECARS.**
See PRICE and SPECIFICATION.

£6 complete with apron, 2½in. tyre, well made and elegant art cane body, wide mudguard, 3-bolt fastening (MY SPECIALITY).
THEY'RE WORTH DOUBLE.
ost easily detached sidecar on the market.
APPROVAL WILLINGLY.

Collier's Motories,
3, Park Cross Street, LEEDS.
(Facing Town Hall.)

QUADCARS.

8h.p. Phœnix Quadcar, twin water-cooled Fafnir, two speeds and reverse, splendid condition; £37 10s.—128, High Rd., Tottenham.

PHŒNIX Quad, 2 cyls., seat two, magneto ignition, in new condition, wheel steering, painted French grey, detachable front seat with bonnet to replace; client leaving the country; cost £127 to clear, £45.—Apply, Turvey and Co., Garage, Sunderland.

TRAILERS.

TRAILER for sale, good condition (needs new tyres); 30s.—A. P. Starkey, Ryton, near Coventry.

TRAILER, Perry's, art cane body, upholstered green, cushion, apron, Dunlops, perfect; bargain, 50s.—19, Albemarle Rd., Willesborough, Kent.

CARS FOR SALE.

PALMER.—16-20h.p. Mutel Landaulet, open or closed body, side entrance, grand car; £100.

PALMER.—40-50h.p. De Dietrich, side entrance car, latest model, fitted hood, screen; £325.

PALMER.—16-20h.p. De Dietrich, 5-seater, magneto, just re-painted, and ready to go anywhere; £75.

PALMER.—24h.p. F.I.A.T. Burlington body, hood, screen, side curtains, full equipment; £175.

PALMER.—16-20h.p. Corre tonneau, hood, screen, head lamp, full equipment, spare tyre; £75.

PALMER.—12-16h.p. Aries, tonneau, genuine Aster engine, fast, reliable, and light car; £75.

PALMER.—15h.p. Darracq, 5-seater, hood, screen, push pedals, tyres like new, perfect; £95.

PALMER.—15-20h.p. Panhard Chassis, with lorry body, 4-cyl., good running order; £55.

PALMER.—12-14h.p. Humber, tonneau, Moseley perfect tyres, very smart car; £65.

PALMER.—16-22h.p. Gladiator, side entrance, long chassis, disc clutch, roomy body; £125.

PALMER.—9h.p. Jackson, 2-seater, bucket body, general condition like new; £85.

PALMER.—12h.p. M.M.C. tonneau, 2-cyl., good running order; clearance price, £35.

PALMER.—24h.p. Mass, 2-seater, racer, electric lamps, steel chassis; £150.

PALMER.—16-24h.p. De Dietrich Chassis, late type, M.O.V., pressed steel frame; bargain, £85.

PALMER.—In stock at Tooting, one monoplane, 30ft. span, ready to receive engine; £75.

PALMER.—All above seen at L. N. Palmer's, 9a, Trevelyan Rd., Tooting. Garage one minute Merton Rd. tram terminus, Tooting. 'Phone, 208, Streatham. Photos, details. Easy terms. Exchanges.

ECLIPSE.—14-16h.p. Darracq, the 1910 speciality; immediate delivery; 225 guineas; old car part payment.

ECLIPSE.—14h.p. Star, 4-cyl., M.O.V., side entrance, excellent order; £85.

ECLIPSE.—14h.p. Forman, 4-cyl., M.O.V., side entrance, new condition; bargain, £105.

ECLIPSE.—14h.p. Pritchett and Gold, 4-cyl., steel frame, hood, excellent order; £72 10s.

ECLIPSE.—12h.p. J.P., 2-cyl., long chassis, side entrance, hood, perfect order; £80.

ECLIPSE.—10-12h.p. Gnome landaulet, four seats, splendid order; £87 10s.

ECLIPSE.—6h.p. Siddeley, 2-seater, steel frame, reliable and good; £42.

ECLIPSE.—6h.p. Swift-De Dion, 2-seater, hood, perfect order; £38.

ECLIPSE.—10-12h.p. Star box delivery van, very good order; £60.

ECLIPSE.—8h.p. De Dion, genuine, two speeds, tonneau, in pink of condition; £72 10s.

ECLIPSE.—6½h.p. Darracq, 2-seater, reliable little car; £22.

ECLIPSE.—6h.p. Quadruot Carette, coach-built, two speeds; £20.

ECLIPSE.—8-10h.p. Rexette, 3-seater, very fast, excellent condition; £29.

ECLIPSE.—3½h.p. Raleighette tricar, two speeds, water-cooled, splendid order; £20.

ECLIPSE.—5½h.p. Rex Triette, 2-cyl., very fine machine; £20.—Eclipse Engineering and Motor Co., 255, Earlsfield Rd., Wandsworth. 'Phone, 1135 Putney.

8h.p. Ariel, 2-cyl., seats four, pretty little car; £35 worth double.—27, Kingsbury Rd., Dalston.

8h.p. Jackson-De Dion, handy little runabout, 2-seater, smart condition; £32 10s.—J., 1, Bedford Rd., Clapham.

10h.p. Coventry Progress, live axle, nice little 4-seated Mulliner body, recently re-painted, perfect; £38.—Below.

10-12h.p. Century, 2-cyl., exceedingly comfortable and reliable car, mechanism carefully overhauled; £35.—334, Clapham Rd.

WE WANT TO SAVE YOU MONEY. IT CAN BE DONE.

But for the introduction of the

"CHEMICO"
TYRE STOPPING

many a cycle and motor cycle cover which is now rendering its owner good and useful service would have been scrapped, and the cost of new covers incurred.

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TYRE STOPPING

is a plastic material which, placed in the cut or gash, quickly amalgamates with the material, to which added, making a perfect repair. Easy to use, is not a liquid, cannot fall out, quickly sets, and makes a permanent repair.

Hundreds of apparently hopeless cases have been saved; if you have a cover badly cut or gashed, do not scrap it until you have given this preparation a trial.

THE RESULT WILL ASTONISH YOU.

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County Chemical Co.,
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LONDON: 43, Gt. Eastern St.
MANCHESTER: 235, Deansgate.
GLASGOW: 128, Renfield St.
DUBLIN: Golden Lane.

ALL CYCLE AND MOTOR DEALERS STOCK IT.

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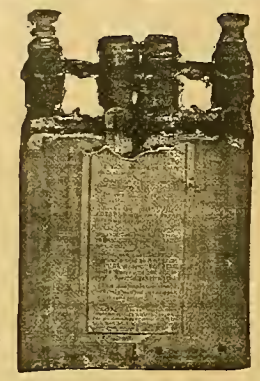
REPAIRS

TO ALL MAKES OF

ACCUMULATORS



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WE ARE SPECIALISTS IN REPAIR WORK, AND SPECIALLY CATER FOR THIS CLASS OF TRADE. NO BATTERY NEED BE THROWN AWAY AS USELESS OR BEYOND REPAIR.

JUST SEND IT ALONG TO US. WE WILL QUOTE YOU BY RETURN, OR MAKE YOU AN ALLOWANCE IN EXCHANGE FOR A NEW CELL.

CELL WHEN REPAIRED.

THE ABOVE ARE FROM ACTUAL PHOTOS, BEFORE AND AFTER REPAIRS, OF AN ACCUMULATOR SENT UP BY A CLIENT, AND ARE NOT SPECIALLY FAKED UP FOR ADVERTISING

Our new List, containing 40 pages, sent post free on request.

Dept. A.R., **RICHFORD & CO.** (Accumulator Specialists),
153, Fleet Street,
LONDON, E.C.

EPR

CARS FOR SALE.

10-12h.p. Speedwell, 2-cyl. (Monobloc), medium size, 4-seater, modern design, smart appearance; £55.—Below.

10-12h.p. Minerva, 2-cyl., fast, useful 2-seater, hood and screen, large detachable box at rear; £37 10s.—Below.

9h.p. De Dion-Speedwell, very latest type of this well-known firm, 2-seater, hood and screen, very powerful, handsome car; £68.—Below.

ALL above are high grade cars, well maintained.—Sully, 10, Old Town, Clapham. 'Phone, 1781 Battersea.

M.M.C., 8h.p., 2-seater, three speeds, reverse, runs well; £22 10s.; exchange motor cycle. — 406, Garratt Lane, Wandsworth.

4½h.p. De Dion-Progress, 2-seater car, tyres unscratched, new cylinder; £35; exchange 1910 motor cycle.—Richardson, Lea Brooks, Alfreton.

£60.—10-12h.p. Lanchester, water-cooled, 5-seater, new tyres, re-painted, perfect order, many spares.—3,847, *The Motor Cycle* Offices, Coventry.

4½h.p. De Dion Phaeton, two speeds, perfect condition; £18 10s., or exchange.—128, High Rd., Tottenham.

9-11h.p. Star, tonneau, three speeds, reverse, equal wheels, complete equipment; £60; very good condition; trial.—Above.

CAR, 9h.p. Rex, seats four, three speeds and reverse, in splendid condition; exchange for motor cycle and cash, or sell £75.—83b, High St., Sutton, Surrey.

LIGHT 2-seater Car, good gear box, three speeds and reverse, with or without 4½h.p. De Dion engine, in capital order; price £19, or £15.—Hitchcock, Rattlesden, Suffolk.

10-12h.p. Tony-Huber, 4-seater, splendid condition, three speeds, reverse, excellent tyres, hood, Stepney wheel; £58; consider smaller car part.—4, Frances St., Woolwich.

6½h.p. Genuine De Dion Modern 2-Seater (buckets), Dunlops, artillerys, two speeds, reverse, cardan drive, screen, lamps, smart, reliable; £37.—D., 59, Minet Av., Willesden.

10-12h.p. Pick 4-seated Car, 2-cyl. engine, been standing in coach-house over a year; must sell; £20, or exchange motor cycle.—Apply in first place, Turvey and Co., Garage, Sunderland.

DARRACQ, 15h.p., in good condition, County screen, Cape hood, detachable back, forming 2-seater; £115; good modern motor cycle taken in part exchange.—Heybourn, Motors, Maidenhead.

10-12h.p. M.M.C., Daimler 2-cyl engine, roomy tonneau body, make a splendid van up to one ton; must clear; £35, or exchange Triumph motor cycle. — Turvey and Co., Motor wks., Sunderland.

PANHARD Car, 6h.p., 2-seater, water-cooled, three speeds, reverse, electric ignition, artillery wheels, pneumatic tyres, wheel steering, good running order; trial given; £12 10s.—Shackleton, Livingstone House, Bolton Woods, Bradford, Yorks.

ENGINES.

2½h.p. Vertical Engine, complete, air-cooled; £1.—Weeden, 35, Bow Lane, Poplar, E.

GAS Engine, ¼h.p., and Crypto enclosed dynamo.—Full particulars, 119, Gordon Rd., Ealing.

ENGINES.—Roc, 4h.p., single-cyl., new 1910 type; early deliveries.—A. W. Wall, Ltd., Birmingham.

3h.p. Automoto Engine, cylinder damaged, Acetyphote, F.N. and Longuemare carburetters; £3 or offer.—Lee, Woodton, Bungay.

FAFNIR Engines; your old engine taken part payment for 1910 model, 80 by 90.—Genn, Motor Engineer, Wimbledon.

QUADRANT Engine, 3h.p., genuine Birmingham works built, complete, brand new; offers. — Reg. Samson, Ladywood Rd., Birmingham.

QUADRANT Engine, 2½h.p., also tank and surface carburetter, new, never used; £4 4s., or near offers.—Apply, Box L903, *The Motor Cycle* Offices, 20, Tudor St., E.C.

AERIAL Model Motors.—Model practical air or water-cooled ½h.p. petrol motors, 9s. 9d., machined; profusely illustrated list, 80 sizes, 4d.—Littleover Aerial Dynamo Works, Derby.

4½h.p. Bradbury Engine, two-speed gear box, clutch, carburetter, in first-class condition; can be seen running on tricar by appointment; £11, or nearest offer.—Strickson, 91, St. Stephen's Rd., Upton Park.

3h.p. Fafnir Engine, complete, carburetter, silencer, fitted with cut-out, recently re-bored, dome top piston fitted, guaranteed in good condition; can be tried; price £4 15s.; buying 4½h.p. Fafnir.—71, Avarn Rd. Mitcham Rd., Tooting.

CLEARANCE Bargains.—Chater-Lea two-speed gear, wants new pinion, £2 10s.; Collier silencer, large, 6s.; two Peugeot 5h.p. ditto, 4s. each; coil, large, Nilmelior trembler, 15s.; Chater-Lea tank, 21in. long 8½in. deep, 15s.; Minerva ditto, 24 by 8, 10s.; De Dion car coil, non-trembler, 25s.; 4½h.p. De Dion water-cooled cylinder, 20s.—Genn, Motor Engineer, Wimbledon.

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BELTS

THE MOTOR CYCLE

Vol. 8. No. 357. Jan. 24th, 1910.

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The 1910 Competition Programme.

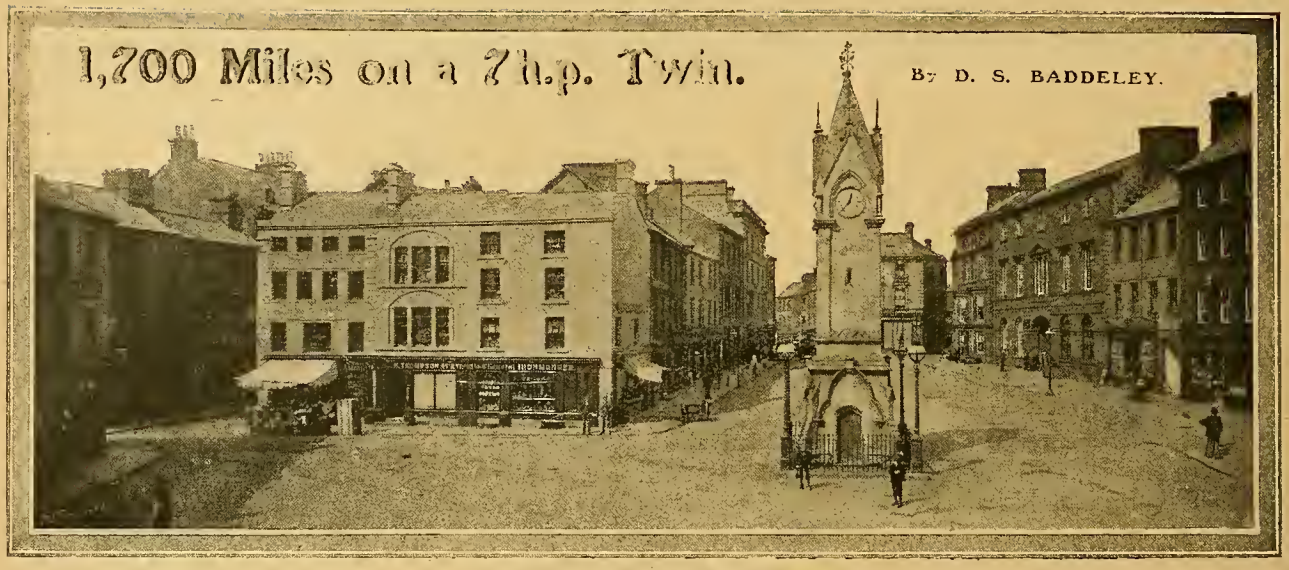
NEXT Saturday, the motor cycle competition ball will be set rolling with the A.C.U. Quarterly Trial, and what a formidable list the 1910 fixtures make! The numerous competitions indicate in no uncertain fashion the growing activity in the pastime, but it is likely that the present year will witness the weeding out of superfluous trials. At present some of the projected trials are mere repetitions of other events which have already achieved fame and importance. Consequently it is hardly likely that manufacturers will spend money by entering their riders in the lesser-known events, as already the expenses incumbent upon demonstrating to the public the capabilities of the modern motor cycle form a heavy year's total. Moreover, it will be generally admitted that half a dozen really important and well supported events are likely to do far more good than an abundance of unrepresentative and poorly supported trials. We are not here referring to closed events organised by provincial clubs. The more of these trials the better, as we realise that they are good for the pastime, and do much to stimulate and sustain local interest in motor cycles. We were recently asked by a new firm of manufacturers to enumerate the most important of the events already decided upon. On scanning the list we could not help but be struck with the similarity of some of the competitions, and it does seem a pity that manufacturers should be called upon to support two events of a practically similar nature, when one really big event would not only halve the expenses but most probably be productive of more real good. This is no doubt the opinion of a number of firms.

Taxation Exemptions.

DURING the last three or four months we have made frequent references to the question of the local taxation licence and the exemptions which were granted by the Inland Revenue authorities prior to the time the duty of collecting the tax was handed over to the various borough and county councils. One exemption in particular which was invariably granted by the Inland Revenue Department (the clause is still printed on all the declaration forms which we have seen in circulation) refers to motors laid by and not used at any time during the year. This exemption clause has been in operation during the last twenty years, but recent correspondence has shown that in some cases the local officials have insisted upon payment of the duty whether the motor was used on not. This seems farcical, and we should say that payment of the duty could not be enforced by any officer in the case of a motor kept but not used. We have had personal proof during the last few weeks that all local officials do not insist upon payment of the duty under the circumstances enumerated. Consequently our advice to any reader who has a motor cycle which he does not intend to use at any time during the year is to address a courteously worded letter to the clerk to the borough or county council in whose district he resides explaining that he does not intend to use the machine for a time, and that immediately it is put on the road the necessary licence will be taken out within the stipulated twenty-one days. In nine cases out of ten we feel certain that the reply will be to the effect that payment for a licence will not be enforced until the motor is actually used.

1,700 Miles on a 7h.p. Twin.

By D. S. BADDELEY.



Devonshire Street and Market Place, Penrith.

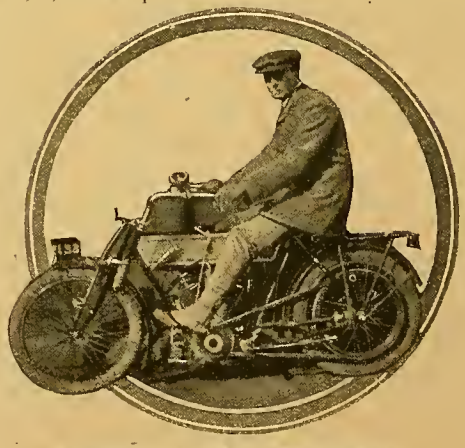
IF this history is neither strange nor eventful it is veracious, and although many men may have accomplished a bigger mileage in sixteen days than I did, yet I feel that I may look back on my trip with pleasure and perhaps a little pardonable pride.

The story opens in a suburb of Glasgow on Wednesday, July 28th, 1909, and there at 6.30 p.m. the writer is awaiting the arrival of two fellow clubmen who have offered to see him safely off the premises.

At 6.45 p.m. No. 1 arrives on a 1909 Triumph; a 4½ h.p. Minerva is a bad second, turning up at 7 p.m. I have discussed my route with No. 1, and we both talk it over with No. 2, and having wheeled out my 7-9 h.p. Baddeley, with Peugeot engine and other component parts (some of which will be referred to later), we start away through East Kilbride to Hamilton, where I fill up with petrol, and my friends decide to return as rain has commenced. I push on southwards, and at Larkhall an umbrella coat which has accompanied me through five London-Edinburgh jaunts is unstrapped and put into commission, for the rain is now coming down in sheets. The front plug has been industriously sooting itself up meanwhile, and at Lesmahagow I decide to clean it. This done we run well over Douglas Moor to Abington, where an A.A. scout advised caution. The water is starting to run down my neck and blow past my wind cuffs, so, traps or no traps, I open up a bit and soon reach Elvanfoot. Here the front plug indicates in the usual manner that it has managed to get sooted up, so again it comes out and is cleaned, and then at an increased pace we travel to Nethercleugh.

By this time the rain has found its way down my neck, up my arms, and into my shoes, but the 7-9 h.p. does not complain, and after lighting up we soon reach Lockerbie, then Ecclefechan, Gretna Green, and over the Solway Firth into good old England. It is light work now to Carlisle, and at 11 p.m. I arrive at the County Hotel, and have a hot bath while my clothes are drying.

Pouring with rain on Thursday, but I start at 9 a.m., running through Penrith and so on to Shap. On this hill I run into an especially moist cloud about four miles from the top, and the rain runs off my face and down my neck, which is not pleasant. Prospects improve at Kendal, through Kirkby Lonsdale and Clapham to Settle. At Hellifield my front wheel drops into a huge pothole full of water, which splashes on the high-tension terminal of the magneto and causes misfiring in the back cylinder. Soon Skipton is reached, and then follows the string of big towns, with bad going and many delays. At Leeds I refill (man and machine), then on through Wakefield, Barnsley, Sheffield, and Derby, to Leicester. Here I fill up again (petrol only this time), and raise my gear from 3¾ to 1 to 3½ to 1. At Market Harborough a belt-fastener breaks, so I replace it and close up the adjustable pulley still further. Northampton is reached in due course, then Dunstable; here I stop for a cup of Bovril, and raise my gear still higher rather than shorten the belt. From Dunstable to St. Albans seems to take no time at all, and thence I dodge across country through Enfield to Chingford, arriving there at 10 p.m. Two days, 438 miles, mostly over wet roads. [Unless, as in the writer's case, it is desired to call at Leeds for the purpose of visiting friends, there is a much better road for motor cyclists journeying from almost any part of central Yorkshire to London. After Skipton all signposts pointing to Leeds



The Author on his 7-9 h.p. Baddeley-Peugeot.

1,700 Miles on a 7 h.p. Twin.—

should be studiously ignored, and, proceeding through Ilkley and Otley, the rider finds himself at Harewood, then Collingham, and in about a couple of miles the Great North Road or Leeming Lane is reached. It is then a direct run south through Aberford, Doncaster, and Grantham, to London.—Ed.].

The M.C.C. London-Land's End-London Run.

Next day (Friday) I get all cleaned up, change the tyres, and with my brother ride over, in the evening, to Hounslow, where we put up for the night. Saturday (July 31st) sees us up at an unearthly hour, and at 4.14 a.m. we start on the first stage of the Motor Cycling Club's London to Land's End and back ride. Of the journey down I will say but little. The machine ran like a clock; all the hills were taken on less than half throttle with a 3½ to 1 gear. But something went wrong with my internal economy, and I atoned for my past life, or at least some part of it, on two sodas and milk, which constituted my entire personal consumption during the run to Land's End and thence to Penzance. On Sunday the M.C.C. party go over to Land's End in a 4 h.p. brake. On Monday I try the machine at 4.45 a.m., and it fires splendidly in both cylinders. At 5.2 a.m. Timekeeper Bidlake gives me the word to go on the return journey, and I arrive at Redruth in front of my schedule, so wait a short time. Three miles further on I lose the way, and waste much precious time before getting on to the right road. I am endeavouring to make up lost time when the engine stops suddenly. I suspect the magneto, examine it, see nothing amiss, and try again. No go! Hugh Gibson comes along, stays as long as possible and does his best, but not a single explosion rewards us. I take the magneto down, clean well with petrol, and re-time it, but nothing happens. So there is nothing for it but to wait till a friendly car comes along, and I get a tow into Truro. I suppose it was necessary for that car to go along at thirty miles an hour, and of course the fact that my poor arm was pulling over 300 lbs. of dead weight did not matter, except to me. Off came the magneto, and by noon it was on its way to London, while I went back to Penzance to wait for it. The trouble was traced to the condenser, and it was cold comfort for me to realise later that I might have been able to finish had I thought of cutting the condenser out altogether. A piece of indiarubber under the spring that holds the contact breaker cover on would have done the trick.

Lyme Regis from the Copse.

Awaiting the Magneto.

I filled in two and a half days very well, visiting the Scilly Isles one day and Falmouth the next by sea. On Wednesday, August 4th, the magneto arrived, and

King's Parade, Dawlish.

1,700 Miles on a 7 h.p. Twin.—

on Thursday I trained back to Truro, fitted it on, and at 2 p.m. struck out for St. Austell, Liskeard, Saltash, and Devonport. Here I was confronted with a steep hill on leaving the ferry, and found a difficulty in starting, but I managed to get going up a side turning, and rode through Plymouth without a stop—only to find I had taken the wrong road. However, I had plenty of time, so why should I worry? I went on to Tavistock, Prince Town, Two Bridges, and to Postbridge. At Moreton Hampstead I struck a hill which demonstrated one advantage of a high powered twin. The gradient was severe and the corners awful: I found I could climb well enough with a fairly rich mixture and spark fully retarded, the engine pulling comfortably at slow speed; at the bends I had to nearly shut the throttle, but once round I could slam the spark forward, the engine would begin to race, and the belt, of course, to slip on the engine pulley. Then by gradually retarding the spark the slower engine speed caused belt to grip, and so to the next corner. At Farrant's Hill my back tyre went down, and while repairing I chatted with a local farmer, who advised me to turn and go to Torquay. I went, but it meant climbing Doccombe, which has bits of 1 in 9, 1 in 8, and 1 in 11. Hereabouts I struck a flock of sheep on a long hill, and this meant riding back down the hill, a long wait, and then another dash for it. My gear was still 3½ to 1. Just before reaching Moreton Hampstead on my return journey I turned off sharp to the left, making for Bovey Tracey. At Newton Abbot I filled up with petrol, lit the lamp, and reached Torquay in good time for supper and a walk round the town. The roads were splendid on this day's run, but very hilly. Troubles (apart from magneto), one puncture and one inner tube chafed through at the butted end.

Carn Brea, Redruth.

Under a Blazing Sun.

On Friday morning, August 6th, I start away from Torquay at eleven o'clock, and make for Teignmouth and Dawlish under a blazing sun, which tempts me to leave the machine at the side of the road while I indulge in a swim. Then alongside the River Exe and across to Topsham. At one o'clock I arrive at Exmouth and have another swim, in the sea this time, after that lunch, and then Sidmouth is my next place of call. Now the collar work begins, and before riding up through White Cross, Newton Poppleton, and Sidford I had to open out the adjustable pulley, so that I could race the engine round the bends, and retard the magneto in order to enable the belt to grip on the level. I ran down into Colyford, and thence to Heathfield Cross and Lyme Regis, the engine pulling splendidly, although the heat was scorching. On to Bridport, Dorchester (where I bought petrol), and

Tropical Torquay from Waldon Hill.

1,700 Miles on a 7 h.p. Twin.—

to Bere Regis. In the churchyard here Tess, the heroine of Hardy's famous novel, is supposed to have set up the family four-poster and put her young brothers and sisters to bed. Thence by Wimborne Minster and Ringwood to Southampton, where I stayed the night.

On Saturday I started at 9.30 for home, travelling by Winchester, Alton, Farnham, Bagshot, Staines, West Drayton, Pinner, Barnet, Enfield to Chingford, arriving at 3.30 p.m. No troubles beyond those already recorded; and I had not touched belt or valves.

On Friday I start on my journey north at 2.30, and by evening reach Newark, where I stay the night. Saturday's journey is to Doncaster, Leeds, and over the route by which I came south. In Leeds I stayed with friends for four hours, and I finished up for the night at Kendal. Next day (Sunday) took me through Kendal, Windermere, Ambleside, Derwentwater, Keswick, Penrith, and Carlisle, and back to Glasgow—in all a total of 1,705 miles. Except for the magneto failure, which is quite an unusual occurrence, the only trouble was as stated—one puncture and one chafed butted tube.

Falmouth Bay.

Private Owners, Trade Riders, and Professionals in America.

THE following extracts from the rules of the Federation of American Motor Cyclists, which were founded on the A.C.U. Competition Rules, may interest our readers:

"Three classes of competitors shall be recognised—private owners, trade riders, and professionals.

"A private owner is an amateur who, since the adoption of these rules, has never engaged in motor cycle competition or exhibition as a trade rider; who actually owns the motor cycle used in competition; who is not connected in any way, either directly or indirectly, with any person or firm that manufactures, assembles, sells, or repairs motor cycles, motor vehicles, or internal-combustion engines, or who operates them as a trade or profession; who has never received, either directly or indirectly, any compensation whatsoever for engaging in motor cycle competition or exhibition; who has never knowingly competed in any sport against a professional; or who has never sold or otherwise realised pecuniary benefit from a prize.

"A trade rider is an amateur who is connected, either directly or indirectly, with a person or firm that manufactures, assembles, sells, or repairs motor cycles, motor vehicles, or internal-combustion engines, or who operates them as a trade or profession; who has never competed for cash, either in the form of prizes, wagers, gate receipts, or appearance money; who has never knowingly competed in any sport against a professional; who has never sold or otherwise realised pecuniary benefit from a prize; or who for any other reason is not eligible as a private owner.

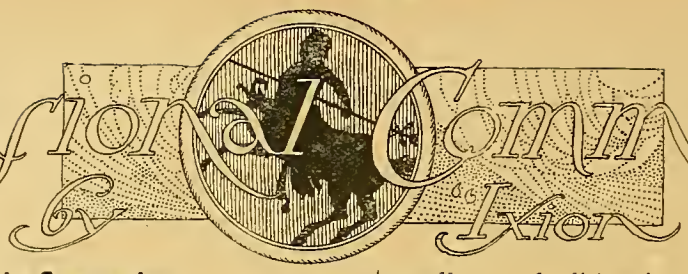
"A professional is one who has competed for cash, or who has otherwise violated the above rules applying to a private owner or a trade rider.

"A trade rider who has severed all connection with the trade, and who for six months previous to his application for reinstatement has had no connection, either directly or indirectly, with the trade, may be placed in the private owner class by unanimous vote of the Competition Committee."

Easter falling earlier this year, it behoves readers who already possess motor cycles and require them overhauled before the holidays to lose no time in placing them in the hands of the makers. There is usually a big rush during the four weeks preceding Easter, so that now is the time to have repairs promptly and efficiently executed. The foregoing is the gist of a reminder to hand from the N.S.U. Motor Co., Ltd.

AII

Occasional Comment



Riding in Spectacles.

Dr. Mevan, of Blaina, Mon., has forwarded to me samples of a special goggle he has patented for use by spectacled motorists. The miseries of a spectacled driver face to face with a long journey on a wet night can obviously be better imagined than described. The patent goggle has no glasses, and consists simply of two short tubes of clear celluloid fitting in a frame which lies closely against the wearer's face. It acts in two ways. The depth of the tubes (3in. measured on the side near the ear) makes them act as miniature weather screens with regard to the optical spectacles, worn underneath them, so that in any case very little rain or snow could be blown on to the lenses. Secondly, if the goggle is padded to fit closely to the face, a cushion of air is interposed between the eyes and the tubes, and protects both eyes and spectacles from draughts and rain.

The 1910 End-to-end Trial.

I have just received a long letter from a well-known medal winner in the A.C.U. Six Days' Trials, who hopes that hill-climbing will receive greater prominence than in previous End-to-end runs, and that marks will be awarded as last year. In 1909 the riders were observed (in my opinion rather imperfectly) on three or four stated hills, for climbing which marks were allotted. Riders who failed to obtain a high percentage of marks on the official hills were thereby disqualified from obtaining a gold medal, no matter how regular their running on the flat might be. This is a splendid system, but the End-to-end course does not contain a single ascent to compare with Wenlock, Festiniog, Dinas Mawddwy, and Birdlip. Redhill is nothing, Shap is nothing, and the northward side of Berriedale is merely awkward without being really steep. The 1909 system of hill-climbing marks as applied to the original End-to-end course would be a delusion and a sham, and would simply lead to a few riders losing marks on Berriedale because they had never seen it before. It is a fluke ascent at the first time of asking. I am therefore very glad to say that the 1910 End-to-end is to supply a real criterion of hill-climbing powers. The riders are required to make the ascent of Amulree—one of the most difficult climbs I know, which no badly handled machine can ever manage, and it is beyond the compass of any engine that has lost tune. It is of great length, cannot be rushed, owing to awkward turns, has a poorish surface, and is exposed to gales. When man and machine are growing a trifle weary of it they have to negotiate an infamous double hairpin bend, and above the bend are some 600 yards of sufficiently exacting gradient. This climb will hall mark the good machines in the trial. Stiff as it is, it is not in my opinion one whit too severe a task. If a new engine driven by an expert cannot climb Amulree, a well-worn duplicate is no fit mount for a touring amateur. The preliminary announcement states that the competitors are to tackle the northern side of Amulree. I sincerely hope this is a clerical error. The southern side, approached from Sma' Glen, is more suitable.

Silencers in the T.T. Race.

The original regulation that silencers should be dispensed with in the actual T.T. race, though not in practice, was sound, because it is almost impossible to enforce a uniform standard of silence. At the same time I am very glad that silencers are to be enforced, because several riders are often close on each other's heels near some of the difficult corners, and if by reason of the noise made by an open exhaust each rider is deaf to the proximity of others, accidents are extremely likely to result. Last year I saw several episodes both at Ballacraine, Glen Helen, and the Devil's Elbow, which confirm this opinion. As silencers are compulsory, some means might be taken for reducing them to a common denomination of silence or its absence. Is it too much to hope that some public-spirited technical expert would volunteer to make tests before the race? If a gentleman with the requisite qualifications could be found, it would be very simple to make each entrant send in the silencer he proposes to use a month before the race. The technician could test these silencers on a bench engine, and fake them towards a tolerable uniformity. They could then be served out on the morning of the race, and substituted for the silencers used in practice, under the eye of official observers. Perhaps the ruling does not deserve so much trouble; but as a matter of fact we are all rather in the dark as to exactly how much efficiency is gained by using a very make-shift silencer. It would be interesting if some fully qualified technical expert would take a standard silencer off some well-known machine, and see what percentage of efficiency he could obtain by removing its entrails and drilling out its end plates. Some T.T. silencers last year were like the Irishman's coat—a mass of holes held together by stitches.

The pocket electric flash lamp which was mentioned in *The Motor Cycle* of the 10th inst. is now ready for delivery, and the makers, Priest and Co., 66, Bishop Street, Birmingham, have kindly sent us one of the first of these lamps, which is an extremely neat production. The lamp and accumulator battery are enclosed in a nickel-plated case, the switch being so constructed that the light can be left on continuously if desired. Either .8 or .4 amp. Osram lamps are fitted, but although the .8 amp lamps give greater light the makers prefer to fit the smaller capacity bulb, which enables the accumulator to retain its charge for a longer period.

BENZOL AS A FUEL.

The Origin of Benzol, its Constitution and Use.

BY J. BELLERBY.

WHEN the general public are offered something which is claimed to be very much better—and yet cheaper—than a standard article, they are apt to be dubious and exclaim, "No thanks. I've heard that tale before!" The motoring section of the public are no exceptions to the general rule, and at one time could not believe when offered benzol at a low price that it was at all likely to ever equal or supersede petrol.

Now benzol is not a patent medicine, or even a patent fuel, but, on the other hand, is the basis of a very large industry, viz., the making of dyes, explosives, medicines, disinfectants, and perfumes, to mention a few of its uses, and for years the supply was not equal to the demand from the dye trade alone. When petrol engines were first introduced the users could not afford the price for benzol (which was 15s. per gallon at that time), and in their search for a substitute found a valuable fuel in petrol, which prior to that time was a drug on the market.

However, during the intervening period, a greatly increased supply of benzol and a smaller demand from

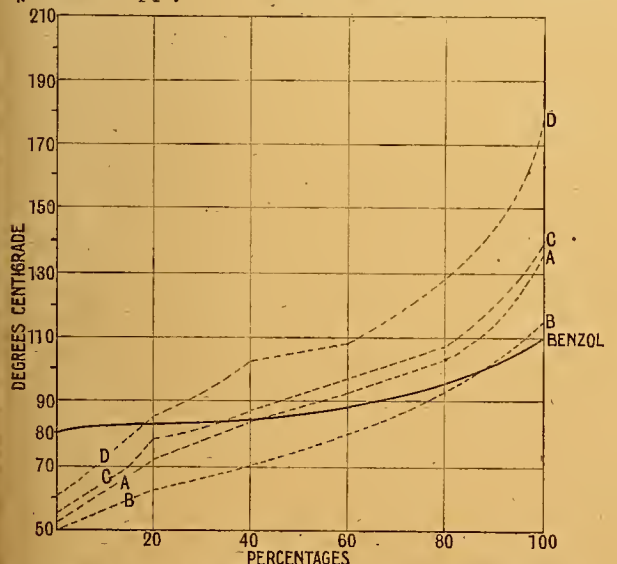
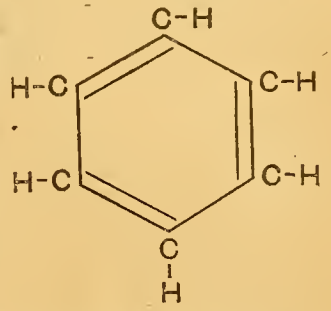


Diagram of curves, showing the volatility of various petrols compared with ordinary benzol. A. Pratt's Perfection. B. Pratt's special. C. Shell. D. P.G.R. Broad line 90% benzol.

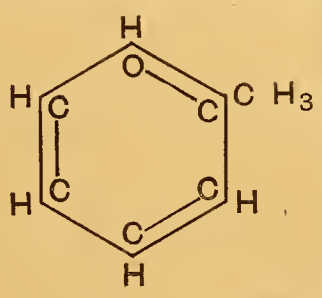
the dye trade have created a surplus which has been placed at the disposal of motorists at a very much lower price than petrol.

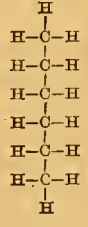
When coal is heated strongly and the air excluded, coke, gas, and a little tar are obtained, and this is done on a very large scale in gasworks and coke ovens. In gasworks practice, the main object is the making of gas for lighting purposes, so no benzol is available from that source, except the small percentage in the tar. In coke oven practice, coke is the principal product, and the gas is used to heat the ovens, but before being used for this purpose it is washed with, firstly water which extracts ammonia, and then with oil, which absorbs the benzol present in the gas. This oil is next heated, when the benzol distils off and is collected and very carefully refined with chemicals and then redistilled and fractionated into the various commercial fractions, the first fraction being benzol.



Benzol is a compound of carbon and hydrogen of the formula C_6H_6 represented graphically as a hexagon in which all the carbon atoms are bonded together, making a closed ring.

Its specific gravity is .884, and boiling point 80° C. Commercial 90% benzol contains another body called toluol C_7H_8, that is a combination of benzol and marsh gas, CH_4. Its specific gravity is .875, and boils at 110½° C. Commercial benzol (*i.e.*, 90%) has specific gravity .882, boils at 82° C., and shows 90% at 100° C., dry at 110° C.; its calorific value is 10,000 K. Petrol consists of a number of hydrocarbons of another series, in which the molecules are represented as chain:—





of which Hexane C_6H_{14}, Heptane C_7H_{16}, Octane C_8H_{18} are the principal bodies found in petrol. Its specific gravity is .700 (approximately), and it boils at 60-70° C., and shows 65-70% at 100° C., and dry about 150° C.; its calorific value is 11,200 K.

As a modern engine is essentially a heat engine, the calorific value is a good index as to the value of a fuel, and, comparing benzol with petrol, we find one gallon of benzol contains 8.8 × 10,000 = 88,000 K.; one gallon of petrol contains 7 × 11,200 = 78,400 K.—an advantage in favour of benzol of 9,600 K. As benzol contains 1.8 lbs. more to the gallon than petrol, this is at an equal price; but when we compare them at to-day's price we have:

$$\text{Benzol } \frac{88{,}000}{7} = 12{,}555 \text{ K. for 1d.}$$

$$\text{Petrol } \frac{78{,}400}{15} = 5{,}226 \text{ K. for 1d.}$$

Which speaks for itself.

Benzol as a Fuel.—

As will be seen from the boiling points, benzol has really a lower average volatility than petrol, and is therefore more easily gasified completely than petrol, and so perfect combustion is more easily obtained. From this it follows that deposits on the piston head, cylinder, and valves should be of less frequency with benzol than with petrol, always, of course, taking into consideration that deposits are mainly caused by the lubricating oil being charred.

In using benzol for car and motor cycle engines two things must be watched in particular, namely, that plenty of air is admitted (or, in other words, less benzol sprayed than petrol would be normally), and, if necessary, to weight the float with a blob of solder or a washer slipped over the needle, as, having such a greater gravity than petrol, the float rises higher in the liquid, and so the needle valve closes earlier, and the height of fuel in the jet is below the normal. A low level makes starting difficult and slow running impossible. Some carburetters, such as the B.B. and Triumph, do not require any alteration whatever when using benzol, and all that is needful with these is to open the extra air inlet more than when using petrol.

THE PROBLEM OF THE PRIVATE OWNER.

Summary of the Discussion on a Paper read by the Rev. P. W. Bischoff before the A.C.U. (see page 45 last week.

IN opening the discussion the chairman, Mr. Harry J. Swindley, said they were grateful to Mr. Bischoff for his interesting and painstaking paper, which was open for discussion, and Mr. Bischoff would like a vote taken upon the scheme as a whole.

The lecturer's proposed solution of the problem was briefly that the definition of an amateur be as follows:

1. An amateur is one who is not engaged for pecuniary gain, directly or indirectly, in the motor or allied trades, nor in this or in any other sport.
2. Who is not assisted financially or otherwise, directly or indirectly, by any person engaged in the motor or allied trades.
3. Who has not competed for a declared wager or staked bet, nor, except in track races for special racing machines, for a money prize.
4. Who has not taken part in any competition held not under the Amateur Code of the Auto Cycle Union.

That an intermediate class be formed, to be known as "expert competitors," who are assisted by the trade, but do not engage in this or any other sport for pecuniary gain, and in all other respects conform to the definition of an amateur.

That those competitors who do not conform to either of these definitions be called professionals.

Mr. W. H. Wells said he was afraid, unless the A.C.U. was able to adopt a very strong attitude as regards amateurs, they would have the same thing in connection with motor cycling as had been experienced in connection with cycling. Manufacturers were far more desirous of having events won by amateurs than by the professional or trade rider, and made special efforts to secure such wins. He was in the trade and liked to compete occasionally, but he objected very much to be classed as a professional. If there were a trade riders' class as in America it would enable him to enter, but not as a professional. He was strongly in favour of giving cash prizes to professionals only.

Mr. W. Pratt said so far as he was concerned the paper was somewhat disappointing. It certainly wanted very careful consideration. Mr. Bischoff suggested that there was a falling off in the amateur entries, but looking back at some of the big trials they found the amateur or private owner class well represented. (Hear, hear.) Those were competitions in which the amateur did like to compete with professionals or people engaged in the trade. The pure amateur was a very difficult man to find in the motor cycling world. The definition of the A.C.U. seemed to cover all that was wanted as far as the private owner was concerned.

Mr. F. A. Hardy thanked Mr. Bischoff for having had the pluck to bring the question up. He thought amateurs should have more safeguard offered by the Auto Cycle Union, particularly in the matter of issuing riding licences to those taking part in open competitions. As it would do no harm to have the scheme considered by a body of experts he would move as an amendment "That the A.C.U. Committee be instructed to consider the present position of participants in motor cycle competitions with a view of defining them in two classes, viz., private owners and expert competitors."

Mr. V. Hart said this was the first lecture that he had attended at which the lecturer proposed to take a vote. He asked whether the procedure was in order.

The Chairman, replying to Mr. Hart, said that a vote at that meeting did not bind anyone. If the meeting chose to vote it could do so, and that would stand merely as an expression of opinion of those present.

Mr. H. G. Cove said if Mr. Bischoff's scheme were adopted the only real amateur would be the 'Varsity man with indulgent parents. (Laughter). If manufacturers liked amateurs to win events, was not that an incentive to get young men into the ranks and do the best they could. If a man were supplied with an ordinary stock machine there was no advertisement, but if he were given a picked machine, then he became subsidised. He was against the scheme.

Mr. Hart thought the question lay in a nutshell, and Mr. Cove had put it accurately. The average owner who paid for his machine could not afford to keep a second machine for racing. They all had the greatest respect for Mr. Bischoff, but he could see no reason why they should open the ranks of the A.C.U. to a continuous form of agitation in respect of the amateur or professional when they had gone on quite comfortably up to the present.

Mr. Greisbach said he was always pleased to compete with a trade man. He did not know that the trade man, or the group of well-known riders, had a great advantage over the private owner, provided the private owner had enough intelligence to tune his machine up to the extent of doing its best. He thought that he stood just the same chance in every way. The sham amateur was not of any great value, and he did not see any objection to competing with him.

Mr. J. W. G. Brooker thought it was utterly impracticable to define the amateur on the lines put forward. That was his experience, and he believed everyone present would be of the same opinion. With Mr. Hart, he did not think there was any call at the present time for the proposed definition of the amateur.

The Rev. P. W. Bischoff, in reply, said a great deal of pressure had been brought upon him to write another paper, and he had said that one thing had impressed him, and that he would be prepared to deal with it. He knew in taking up the question at all that he laid himself open to criticism. It was, of course, a difficult problem. It had been said that he had adopted a wrong line of suggestion. As a member of the A.C.U. Council and of the Executive Committee, he wished to say that in all things he identified himself with that body. He did not suggest that that meeting could adopt the suggestions with any force; it had no executive authority, but its opinion had weight everywhere. Mr. Pratt said there was no falling off in entries for the big events; he had never said there was, but in the local clubs (and he had been all over England) he heard the same story—local secretaries cut down the classes because they could not be filled up. Mr. Cove objected to the subsidised amateur; so did he, but the thing existed. His answer to Mr. Hart's suggestion to let well alone was that things are not well, and he would much rather see things better.

The Chairman intimated that Mr. Bischoff would not press his resolutions.

Mr. Bischoff said he would have liked a show of hands.

The following amendment, in addition to that moved by Mr. Hardy, was handed up by Mr. Hart, seconded by Mr. Pratt: "That this meeting refuses to vote upon matters upon which no prior information has been offered." This amendment upon being put to the meeting was declared carried, and the other motions accordingly dropped.

THE WINTER OVERHAUL.

By B. H. DAVIES.

FROM now onwards motor cycling may become increasingly enjoyable, as the days lengthen out, and the temperature fitfully aspires towards a summer which meteorologists tell us is going to be another Diamond Jubilee. Consequently the rider who is not to be blessed with a new mount for 1910 should seize on the first warm day or the nearest warm shed to overhaul his old jigger as thoroughly as possible. No doubt the goldbugs will give a lordly order to the local garage to send up for the machine and return it within two days fit for a record breaking spin on Brooklands; but the needy owner who has to do his own dirty work need not envy his plutocratic brethren. For one thing his overhaul will be the better of the two, since in this vale of tears "he worketh best who worketh for himself," and also he will gain such a novel insight into the whimsies of his machine that roadside troubles will be shorn of half their terrors for the honourable spell of roadwork that lies ahead.

The Engine.

The engine is at once the most important and the most difficult item to tune. It need not be removed from the frame, but the cylinder and timing gear should be removed. Test the cylinder for wear with a pair of callipers—wear is most pronounced towards the top of the piston stroke. If the wear be excessive, send the entire engine to a good firm who make a speciality of reboring. Otherwise merely fit new rings supposing the compression is weakish with the old ones. "Hints and Tips for Motor Cyclists" gives very full details *re* overhauling the rings. Remove both valves, test the stems for truth, inspect the exhaust velve's neck for threats of breakage, and grind in both valves. Scrap the old valve springs, and fit new ones, also new cotters to the valves, and file any burred edges off the cotter slots. Scrape the surface of the joints between cylinder head and valve-caps quite clean, and fit new washers, as also to the compression tap. Remove every trace of carbon deposit from piston and cylinder heads—a long job, but quite simple with a long bladed screwdriver, and worth doing well. Next look for wear in other vital parts—all bearings and the valve cams. The least token of wear in the valve cams or rockers makes new parts advisable and they do not cost much. If the valve gear is of the cheap order, cams and pinions being assembled with pins or keys and nuts, instead of being machined from the solid, examine these fastenings very jealously indeed; nothing is more likely to give serious trouble in the second year of use. Wear in the connecting rod and crankshaft bearings is not really very serious until it makes itself audible, and a second season machine will seldom require attention here, unless it has been very badly used. The bushes of the timing gear bearings are more likely to be worn, and any garage will replace them quite cheaply, especially if the assembling, etc., be done by the owner. New bushes, including fitting, only cost a shilling or two; and these can usually be supplied by a local engineering shop. The crankcase should be thoroughly cleaned out with paraffin, to remove oil sediment, especially from the narrow oilways, if there are any. I first drain my crankcase of all lubricant, then let it soak in paraffin for a few hours, and finally reassemble the engine, and get rid of the paraffin by pedalling with the drain tap open; to conclude, inject two or three charges of fresh oil, and pedal this well into the engine on the stand, before allowing the engine to run under its own power.

The Ignition.

If the ignition be coil and accumulator, a new brass for the contact breaker bearing, new platina for the contacts, and a new spring contact blade, are the most probable replacements which caution will advise. The wiring should be thoroughly overhauled, any wires showing excessive flexibility or worn covering being renewed. The insulation and packing of the accumulator box may be made sound and workmanlike by seccotining rubber sheets on its sides, and all sharp orifices through which wires pass should be similarly protected with rubber, or, better still, if ebonite bushes can be procured to fit the holes they will prevent all chafing. If the ignition is by magneto, the instrument may be carefully overhauled according to directions in the makers' handbook; but if it is suspected that the magneto has seriously lost efficiency, it should be returned to the makers, who will overhaul and test it for a few shillings, apart from the cost of large replacements. As a rule, it is ample to clean out the oil reservoirs, polish and adjust the contacts, test the cam for wear, verify and adjust the timing, after which the magneto should be just as efficient as when it was new.

Carburetter.

Probably a good adjustment of the jet, air adapter, and air intakes has been arrived at during the previous year, affording moderate economy of fuel and high efficiency. If so, it will be enough to clean the entire device thoroughly, examine the wires to the handle-bar control for threats of breakage, test the petrol level, and see that the cut off needle valve is petrol tight. The petrol pipe should also be examined for cleanliness and signs of leakage.

The Cycle Frame.

I make it a rule, when my machines are stripped for overhauling, to take a short run by night, using the stripped frame as a pedal cycle, using either the crankcase (empty) or a stout wood block as a connecting link for the gap left by the removal of the engine. Under these conditions I often discover little things amiss with the cycle part. If an owner does not care to face so much trouble, he should at least remove the front fork from the steering head and overhaul the bearings very carefully indeed, as owing to various causes, among which is insufficient provision for regular oiling, this particular bearing is very apt to wear faster than is desirable.

In addition he should remove and examine the cones from both hub spindles. If the cones are chipped or worn they should be replaced; in re-assembling the bearings, if any difficulty is experienced the balls are easily held in place with the aid of motor grease or vaseline, while the cones or cups are screwed up. All these cycle frame bearings should be filled with

The Winter Overhaul.—

thick oil or thin grease, and carefully readjusted, the adjustments being scrupulously locked up afterwards at a quarter of a turn less than dead tight. A good guide to correct adjustment of wheel bearings is that when revolved slowly the wheel should always stop with tyre valve at the lowest point of the revolution, without the bearing showing any sign of play when wheel is held by the rim and shaken sideways. The brakes must not be forgotten, examination of all joints, whether at wire nipples or by bolt, nut, and split pin, being particularly thorough, and the shoes receiving attention in addition. The free-wheel should not be meddled with by an unskilled owner. If it has given no serious trouble previously, it will be sufficient to swill it out very freely with paraffin, make sure that all the pawls are acting with strength and certainty, and then refill it with good cycle bearing oil. The pedalling chain will want thoroughly cleansing, and if desired it may be removed, slightly heated, and plunged into a bath of melted tallow. It is unlikely to require renewing unless it has been fitted to a machine which required constant pedal assistance.

The Tyres.

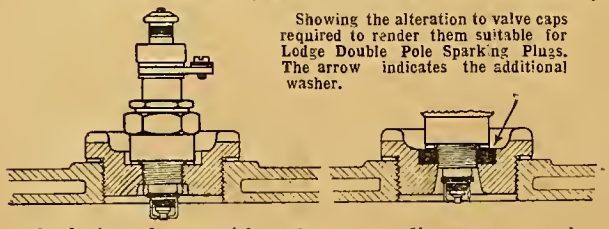
The tyres will probably be content with a single renewal, namely, fresh valve rubbers to both valves. But apart from renewals, the tyres and rims are likely to require very close attention. The inside of the rims will have to be enamelled. The tubes will have to be tested for retaining air; some riders leave tiny gradual leaks over till summer comes, but it is an awful nuisance to waste fine weather in overhauling tyres, and the best plan is to take both wheels out of the forks, carry them up to an attic, and get them into perfect order in comfort and indoors. I begin by removing both tyres, and painting the inside of the rims with black enamel, pushing the brush well under the beaded edges; while the enamel is drying I go over the tubes, and generally find a dubious patch or two; these are half pulled off, half melted off with naphtha, and remade. When both tubes are so thoroughly airtight that they will remain fully inflated for several days at least, the inside of the covers next receive attention. Generally a broken thread or two has been left sticking up out of the fabric where small nail punctures have occurred. These will chafe the tube in time, and besides they mark the presence of small holes by which water enters. The projecting thread is cut off, and a very smooth rubbered canvas patch with rounded corners solutioned over the hole. The tyres then go back on the rims, and are blown up board hard, after which a search for cuts commences. Dozens of tiny cuts are quickly found, but I do not trouble myself about small cuts which have not gone right down to the fabric; it no doubt pays to doctor them with tyre stopping, but it is a wearying job, and they are not immediately dangerous. Big cuts are carefully cleaned and filled, a process which is never satisfactory when conducted in a hurry, but which prolongs the life of a cover considerably, when the filling is given several days to dry. I find that if the cut is thoroughly clean, and the stopping is jammed well in with a wood match, it will be almost an integral part of the cover seven days afterwards.

Details.

Some riders are very fond of re-enamelling their frames during the winter. I am not a great believer in the idea. It is astonishingly difficult to produce a good surface by brushwork, particularly if the frame is not stoved afterwards; and very few amateurs have a dustless room to work in. Very fair results may be obtained with some enamels if the old enamel is scrupulously scraped off before applying the new, but if the machine is disgracefully shabby, and the owner has a little money to spare, it is well worth while to strip the frame and send it to a professional enameller. The work of overhauling may be completed by improving the attachment of any accessories which were apt previously to work loose, and by relentlessly scrapping all worn nuts and bolts, including the retapping or screwing of any threads which have worn or partially stripped. When the overhauled machine is taken on the road for the first time, it will seldom prove to be perfect. If the compression is disappointing, do not trouble until the engine has run about a hundred miles; but if other details are faulty, a very few minutes spent on readjustments of timing, ignition, or carburetter, will generally make the rider feel extremely pleased that he elected to perform his own overhaul.

DOUBLE POLE SPARKING PLUGS.

IN a recent issue of *The Motor Cycle* we pointed out that Lodge double pole plugs will not fit all makes of engines until the valve caps are altered, owing to the fact that the electrodes project too far into the valve chamber, and the valve heads are likely

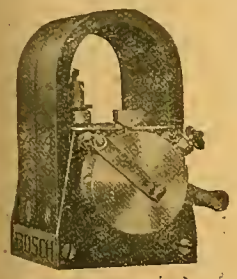


Showing the alteration to valve caps required to render them suitable for Lodge Double Pole Sparking Plugs. The arrow indicates the additional washer.

to foul the plugs, with, of course, disastrous results. Lodge Bros. and Co., Birmingham, informed us that the alteration to the valve caps meant fitting a washer to the cap which prevented the electrodes projecting too far. To enable us to make the alteration quite clear to our readers, we reproduce herewith two sketches, one showing the Lodge plug fitted to an ordinary valve cap and the other the same plug screwed into a valve cap with packing washer to reduce the reach of the points. At first sight one would be inclined to think that the introduction of washers to the valve caps would lower the compression appreciably, but such is not the case. The slight clearance around the sparking points tends to enlarge the compression space a little, but this is balanced by the volume of the plug projecting into the cylinder, thus leaving the compression the same. When these double pole plugs are fitted to an ordinary single-cylinder motor cycle engine with side by side mechanically operated valves it is usual to fit one plug over the inlet and one over the exhaust valve. With automatic inlet valves an extra plug hole must be made.

THE NEW BALL-BEARING BOSCH MAGNETO.

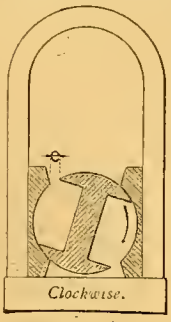
FREQUENT references have been made to the new ball bearing Bosch magneto, but hitherto no illustration and particulars of it have appeared. The DA2 ball bearing pattern is now being delivered to buyers of new models, consequently readers would like to know wherein the new magneto differs from last year's type. It is only in detail that alteration is noticeable, the main features remain as before, and, indeed, it would be difficult to improve upon such a wonderfully reliable piece of ignition apparatus. The outward appearance of the contact breaker end has been changed, the spring holding the cover in position swinging from the side, this being on account of the condenser (17) having been moved from over the armature to immediately behind the contact breaker. The condenser now revolves with the armature.

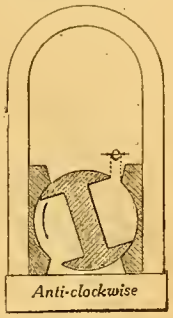


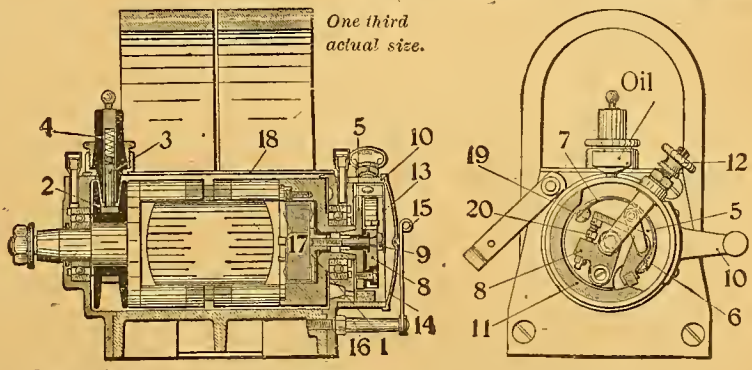
How to Time the Magneto Spark.

The dust cover plate (18) over the armature is readily removable on the new model, and this greatly facilitates the timing of the engine, as the armature is exposed, and its position can be noted. It is well known that the current generated in the winding of the rotating armature reaches a maximum twice during each revolution, only one of which is used for effecting a spark in the case of a single-cylinder engine. To time the magneto the makers recommend the following method: Bring the piston exactly to the top of compression stroke—that is, with the exhaust valve closed—and mark this position on the engine pulley, making a corresponding mark on the crank case. Now give the engine one complete turn forward, bringing the two marks together again, when the piston will be in the required position. Remove dust cover 18, but care should be taken not to damage carbon 3; then bring the armature by hand in position as shown in the sketch, seen from the driving end rotating to the right or left. The distance marked *c* on the sketch should be 5 mm. Finally, tighten the chain wheel on the cone, care being taken not to move the armature.

The switch terminal on the new Bosch is placed in a more convenient position, and improved oiling arrangements are provided. A new type of h.t. terminal which is unaffected by wet is being supplied with the later models. The steel segment is retained as well as adjustable contacts, so that the only part likely to require renewal, and that after several thousand miles, is the fibre insertion at the end of the bell crank lever. The timing lever on the new model is all complete, consisting of brass ring and arm, short circuit clamp, and segment for make and break. It permits of a variation in the advance of 25° measured on the armature spindle. This is equal to 50° on the crankshaft, as the armature rotates at camshaft speed.







1. Contact plate.
2. Slip ring with distributor segement.
3. Carbon.
4. Carbon holder.
5. Contact breaker disc.
6. Bell crank lever.
7. Bell crank lever spring.
8. Contact piece.
9. Fastening screw for contact breaker.
10. Timing lever.
11. Steel segment.
12. Short-circuiting screw.
13. Flat spring for timing lever.
14. Brass end cap.
15. Flat spring.
16. Bolt for spring 15.
17. Condenser.
18. Dust cover.
19. Short platinum screw.
20. Long platinum screw.

Various improvements have been made recently in regard to the Dall belt fastener. Among these are the following: The nut for the screw is provided with a square which fits into a square hole in the top plate, so preventing the nut from turning. Indentations have been made in the top and bottom plate to enable them to sink into the leather or rubber of which the belt is composed when the jaws are pinched together. The bottom plate is turned downwards to prevent it cutting the belt when the leather passes over the small diameter engine pulley. To vary the length of the belt when using an adjustable pulley, the Dall connecting link will be found useful. It will be noticed that this link enables a short section of the V belting to be fitted in the centre by means of the single screw provided. The patentee has certainly devoted much thought to make his ingenious fastener handy and readily adjustable as to length.

Paragraph No. 331 in "Hints and Tip for Motor Cyclists," published on the 10th inst., mentioned that a few of the Amac carburetters appear to have been sent out with throttle springs that are not quite strong enough to keep the throttle valve down on its seat against the fierce suction of a good engine. Will readers kindly note that this paragraph only refers to the 1909 pattern of carburetter?

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Sending Accumulators by Rail.

I wish to send some accumulators a long railway journey. They are in use at present. Kindly tell me how I should pack them? Should the acid be emptied out, or will this injure them in any way?—W.A.W.

The best thing to do will be to empty all the acid out of the accumulators, let them dry, and then send them packed in a box to their destination. When they arrive they should be refilled with acid, and would then be ready for use again after being placed on charge for a short time.

Calculating Gear Ratio. Fitting an Adjustable Pulley.

Please tell me (1) How to calculate the gear of a belt-driven motor cycle, and (2) if you think a novice (like myself) could fit an adjustable pulley?—H.S.

(1.) To calculate the gear is a simple matter. Mark both pulleys, put on the belt, raise the exhaust lifter, and count how many times the engine pulley revolves to one revolution of the rear pulley. (2.) It would be better for you to get an experienced man to fit the pulley, as unless you have had some experience in engineering it would be difficult to cut the keyways, fit the key, etc.

Using the Spark Lever for Controlling Speed.

On my old accumulator cycle I used to cut down the gas, setting the air to match, as much as possible, and regulate my speed by means of advancing and retarding the spark. I am getting a new magneto motor cycle, and am told that I shall have to drive by the throttle and air only, and must not regulate speed by advancing or retarding the spark. Kindly explain this, and tell me why it is?—R. C. S.

The advice given to you is quite correct. The range of advance and retard of the magneto is less than is the case with a machine fitted with accumulator ignition; consequently it is best to keep the spark lever well forward, and to regulate speed by the throttle and air levers. The magneto spark has the advantage of advancing and retarding itself automatically, since it increases in intensity in proportion to the speed of the engine.

Motor Cycle v. Racehorse.

Kindly give me your opinion with regard to a match against a racehorse under the following conditions: The race to be run on Epsom racecourse, Metropolitan course 2¼ miles, the motor cyclist receiving a flying start. I shall be riding a 1909 3½ h.p. T.T. Triumph. The gentleman riding the horse weighs about thirteen stones. The match to be for £100 aside. Conditions—weather favourable and turf holding. I should be interested to see the comments of your readers.—L. E. SKERTCHLY.

The race would certainly be an interesting one, and no doubt hundreds of our readers would like to have an opportunity of seeing it. Provided the ground is firm, the motor bicycle should easily beat the horse with a flying start. Your machine should be capable of nearly a mile a minute on a track, whereas the fastest racehorse has not exceeded thirty-five miles per hour for a mile.

Multi or Single-point Sparking Plugs.

For some considerable time my 1909 Triumph has been very refractory at slow speeds, misfiring setting in below about ten miles per hour. The carburetter received every attention, as also did the contact breaker, the points of which I set to give various breaks, but all with no better results. During my trials to find the cause I used two new multi-point plugs of different well-known makes, but various spark gaps made no difference. I was contemplating having the magneto tested, but on the verge of so doing I came upon an old single point plug of good manufacture, and inserting it into the cylinder, started up with the most excellent results. My machine now starts easier, seems more economical, and lastly runs with the greatest flexibility. Is not this experience opposed to accepted theory?—R.W.C.S.

The experience you have gone through with your machine is quite interesting. It certainly seems to favour a single point plug, though personally we have not been able to detect any difference in the running with either type.

Postman Hadlow with his mail carrier tricar, which he drives twice daily, depositing and collecting mails, between Sittingbourne (Kent) and Frinsted. (See Current Chat pages.)

Improving Engine Speed.

I have a 2½ h.p. lightweight Rex with Bosch magneto and Amac carburetter which runs quite well slowly, but I am anxious to improve speed. Compression is good. I can make engine misfire if air is fully open. If I advance spark too far it will knock. Exhaust valve has ¼in. lift and inlet automatic has ⅜in. It does not run any faster on the stand than on the road. It climbs hills very well. What governs the speed of an engine?—A.J.R.

The exact cause of the trouble is not at once apparent to us. The timing of the magneto seems to be at fault, as the engine should not knock even when the lever is advanced to the full. It may be that the chain wheel on the cone of the armature shaft has come loose. In any case the timing of the spark should receive attention first of all. Knocking is usually due to an excess of carbon deposit. We should recommend you to dismount the cylinder and see if this is your trouble. Engine speed has many governing factors, and if any one important part is wrongly adjusted, the engine speed would suffer. We refer you to "Motor Cycles and How to Manage Them" for a complete answer to your last query.

Respecting Sidecars and Change Speed Gears.

I am about to purchase a 7 h.p. Matchless, and I want a sidecar, as well as a good, cheap, reliable two-speed gear for it. I suppose I could climb most hills without a two-speed gear, but starting and traffic driving would be unpleasant without one, especially with a 12 stone passenger. (1.) Kindly give your opinion of the Millennium two-speed engine-shaft gear. I do not fancy the gears working in the back hub. They seem inaccessible, and put all the weight on the back tyre, and I think it will have enough with our weight—about 24 stones. (2.) How does a castor wheel sidecar behave in grease? Rigid sidecars, I suppose, are the best in that respect? (3.) Is it possible to use a motor bicycle with rigid sidecar when the latter is empty? If not, which is the best type of sidecar? I want one that would not skid.—C. W.

You should certainly climb most hills if a clear straight run were always possible, but, of course, a two-speed gear would be desirable, and practically indispensable on certain occasions. Starting on the low gear would be quite easy. (1.) Engine-shaft gears throw some considerable amount of strain on the engine bearings, which they are not always capable of withstanding. Personally, we should prefer the same make of hub gear with the plate clutch incorporated. This gear is exceedingly well designed, and permits of starting the engine with the pedals, with the back wheel resting on the ground. There is also the gear fitted by the makers of the machine you have selected, which has the same feature. (2.) Not so well as a rigid sidecar; there is nothing apparently to stop it skidding. (3.) Yes, quite possible if care is taken on cambered roads and in rounding corners. It is also possible to sit in the sidecar and drive the bicycle if a clutch and two-speed gear are fitted.

Greater Flexibility Desired.

I recently purchased a motor cycle (85 × 85 mm., twin-cylinder), and I find that it has a rooted objection to going at less than about fourteen miles per hour. It is fitted with J.A.P. automatic carburetter, and, of course, magneto ignition. I have made all the usual adjustments, viz., set the plug points close, raised the level of the petrol in the jet, etc., but the machine is still not sufficiently flexible. I now propose to fit a clutch, and shall be glad to have your advice on this matter. I should also like to hear from any of your readers who have had experience with the Mabon or other disc clutches on powerful machines.—J.E.W.

Your trouble seems to be purely one of incorrect carburetter adjustment, as one of the beauties of a well-balanced twin-cylinder engine is its ability to run slowly and evenly. It is quite possible that the barrel of the throttle may have slipped round, causing a jet or two too many to be uncovered. We should therefore recommend you to examine this portion of the carburetter carefully. Next try some device for restricting the amount of the main air opening, and examine the steel balls which govern the amount of additional air supplied. You could quite well fit a clutch, or, better still, a two speed gear.

A Motor Cycle for Business Purposes.

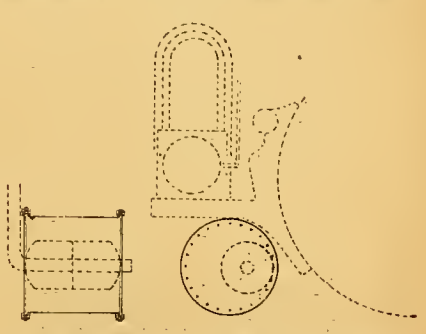
I have a considerable amount of travelling about to do in the counties of Warwickshire, Worcestershire, Staffordshire, and Nottinghamshire. At present I have to go by rail, which, as you well know, is not the most pleasant or least expensive means of transit. I contemplate buying a motor cycle, and should like to know whether you consider I could get a reliable second-hand machine for £20? If so, how about a medium weight machine, say, of 2½ h.p.? Would such a machine take me about in all weathers at a much lower cost of upkeep than the heavier 3½ h.p. machine? Kindly give me an idea of the upkeep of the type of machine you recommend.—W. A., Birmingham.

You should be able to get quite a good second-hand motor bicycle for £20, probably fitted with magneto ignition. Do not purchase a second-hand machine before trying it or seeing it ridden up a fairly steep hill. Yes, a 2½ h.p. machine, if you are not a heavyweight rider, would suit your purpose admirably, but the cost of running would not be much lower than that of a 3½ h.p. You may reckon that the machine will cost about 7s. 6d. per week in upkeep for distances of about 200 miles. The bare running cost, that is, petrol and oil, would not exceed 1s. 9d. per 100 miles.

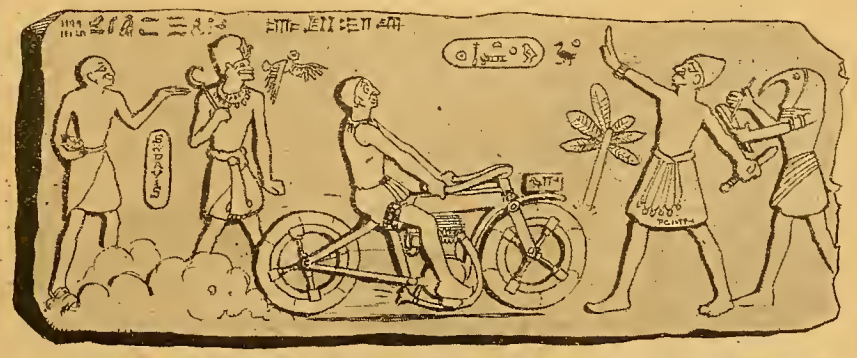
READERS' REPLIES.

Silencer Explosions

I notice in the issue of January 3rd "F. C." wants to know how to prevent popping in the silencer. My Minerva was very bad in that way, but now I have cured it, and at the same time made it one of the most silent machines on the road. All that he needs to do is to fit a larger outer casing to the silencer. I made mine in the following manner: The outer casing consists of a piece of sheet iron rolled



into the form of a sleeve with the ends flanged outwards, and two end plates riveted on. As the bend in the exhaust pipe is so close to the crankcase the holes where the pipe fits in the end plates cannot be in the centre, but must be slightly eccentric, but that will not interfere with efficiency. I enclose a sketch to illustrate my meaning.—H. CAUDWELL.



A recently discovered Egyptian mural carving, time of Rameses II., inscribed in Cuneiform and Hieroglyphic. Ihoth the Ibis-headed God of Time, is evidently supervising an ancient equivalent to a 1910 police trap.

Against Water-cooling.

By "IXION."

I FIND myself in keen opposition to those contributors who have recently pressed for experiments with water-cooling on motor bicycle engines, with a view to its ultimate adoption as a standard detail of our specifications.

A Plausible Case.

At first sight it must be admitted that they have made out a very plausible case in favour of water-cooling. Good as the modern motor bicycle engine undoubtedly is, it certainly suffers from several plain defects, which may be tabulated as follows, even if an absolutely first-class engine be the subject of consideration: (1) Carbonisation of cylinder and piston; (2) breakage of exhaust valves; (3) rapid pitting of exhaust valves; (4) rapid wear of piston rings; (5) liability to knock; (6) liability to overheat; (7) difficulty in starting from cold without petrol or paraffin injections. These defects, I may premise, only manifest themselves after several thousand miles of running (except, of course, No. 7). The advocates of water-cooling contrast bicycle engines with car engines in these seven respects. They prove that these troubles are either wholly absent from car engines, or manifest themselves after a much longer mileage. The car engine is water-cooled; the cycle engine is air-cooled. Water-cool the engine of the motor bicycle and *voila tout!*

A Reminder.

"Rotator" and "Ailette" appear to have forgotten certain experiences which I frequently remember with a stab of pathos. I have already owned two motor bicycle engines which in each of the above seven details were equal to a good motor car engine, and yet were air-cooled. One of them was a 2¾ h.p. M.M.C., the other a 2¾ h.p. De Dion. Neither of these engines ever dreamt of breaking a valve. I ran them both well on into a five figure mileage without ever touching the piston rings. Neither of them ever overheated or knocked till the day I sold it. Neither of them normally required any injection to make it start on the stand or road, if I may except a few occasions in very cold weather when I had been using very thick oils. Neither of them ever dreamt of getting badly carbonised in 2,000 miles, for the simple reason that they were fitted with surface carburetters, which sucked in their air supply at a point where little dust was encountered, and also because a lower compression and less tightly fitting pistons and a lower rate of revolution enabled them to run with far less generous lubrication than the modern engine requires. It is therefore obvious that it is possible to bring the cycle engine to the level of the car engine in these seven respects without resorting to a cumbrous, costly, and possibly troublesome water-cooling system.

Why, may the novice not unnaturally enquire, have these seven valuable items been discarded from the temperament of the modern engine? Well, these ancient engines weighed considerably more than the 45 lbs. or 55 lbs. of their up-to-date compeers. The total machine scaled a couple of hundredweights, as against the 160 lbs. of the modern 3½ h.p. type. An engine of the size I am speaking about seldom ran up to more than 1,800 r.p.m. when fitted with a standard gear, and to a motor bicycle; whereas some modern engines touch 3,000 r.p.m. as an ordinary thing. The modern compression is far higher, and a greater b.h.p. is extracted from the same dimensions. If modern demands allowed a designer to fit a very much heavier engine, developing only 2¾ h.p. from a bore and stroke of 84 mm. or so, none of the seven charges detailed could be brought against the engines of to-day.

Popular Preference.

There is no doubt which of these engines is the more desirable. If I put a new make of motor bicycle on the market, complying with modern practice in every detail except the engine, and fitted with one of these old De Dion or M.M.C. engines, I should not sell half a dozen in a year. The public demand with no uncertain voice a light and highly efficient machine, and to obtain this they are willing to put up with other things as described.

The Remedy.

Water-cooling is suggested as the best remedy for perfecting existing patterns. It is necessarily costly; it is simply bound to add a few sovereigns to the selling price. The only standard motor bicycle with water-cooled engine now sold costs £55, in spite of the simplicity of its engine, as against the £48 to £50 of air-cooled machines of equal power. Water-cooling is bound to introduce a new source of trouble. Well made, it will be reliable for a certain period, probably a long period; but in the end the radiators and piping of the most costly car give trouble, and very often accidents intervene and give trouble before natural derangement has set in. On the other hand, it is easy to see that troubles Nos. 1 to 7 will in time disappear without any such harsh measures as a complete remodelling of design. In fact, they are already disappearing, and have been very greatly modified within the last two or three years. A better understanding of metallurgy will give us valves which do not break, and rings which will wear longer. A very slight modification of carburetter design will prevent dust entering the cylinder *viâ* the carburetter. The hinged petrol drain tap has already reduced the starting trouble to inconsiderable dimensions. Lower compression is also minimising knocking and overheating. Better design of piston rings, coupled with refinements of lubrication, are reducing wear of the cylinder bore. In conclusion, I look confidently forward to the near future when I shall buy an air-cooled motor bicycle of light weight and extreme efficiency, which will not be marred in use by any of the seven troubles included in my list.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

A Cure for Puncture Troubles.

[4518.]—One still hears a lot about puncture troubles on tours and in competitions, but a preparation called Miraculum does not seem very well known. I put a tube of this in each tyre of my motor cycle over a year ago, and the only trouble I have had is to pull out the nail, thorn, or glass, pump up, and ride off—time three minutes.

I have motor cycled a good deal on these Spanish roads without taking a spare tube or outfit, picking up many nails, glass, etc., in the back tyre, but the front still has Coventry air in it. I have no interest in the makers of this preparation save that of a satisfied user.

Gibraltar. L. M. BARNES.

A Suggested Aid to Valve Removing.

[4519.]—I often wonder whether the commercial valve remover has a ready sale, as it always struck me as being such a clumsy tool to carry with one (and it is useless possessing one if it is not always in the toolbag). I thought perhaps an equally efficient and more convenient substitute would be of interest. This simply consists of a wooden plug or disc which will fit loosely on the valve head, and of such a height that when the valve cap is screwed down a few threads the plug is pressed down on to the valve. With this in position the raising of the spring by leverage with a screwdriver against a radiator fin is extremely easy, and the cotter can then be removed with pliers, or even the fingers. It will answer on almost any machine with side by side m.o.v. PLUG.

Ease of Starting.

[4520.]—May I say how cordially I agree with the writer of the paragraph on the above subject in a recent issue. I believe there is nothing that will promote the use of the motor cycle so much as a fitment that would make it as easy to mount and start as a pedal bicycle. Take my own case, and I have no doubt there are thousands of similar ones, I should certainly have got a motor cycle several years since but for the trouble of starting. When I saw younger men having to run by the side of their machines to get up steam and then to mount while the machine was in motion, I knew it was no use my investing in a mount which required a feat of gymnastics every time before it could be ridden, for I am neither young nor active. I am still waiting for a motor cycle to be marketed that will be as easy to mount and ride away as a pedal bicycle.

H. ALLEN.

Increase of Speed on Slightly Raising Exhaust Valve.

[4521.]—This question has struck me as being easily explained. The exhaust valve of all motor cycle engines has a strong spring which closes the valve sharply like striking a blow with a hammer. When striking a blow with a hammer on a piece of solid iron the hammer will rebound. I think this is what happens to our exhaust valve. Instead of it closing as we think it does it drops on the seat and bounces up again, and so allows a portion of the explosion to get past. By partially lifting the valve as we think we simply "take the weight" of the valve and let it gently down on the seat, so stopping the rebound. This is the reason, I think, of the increase of speed obtained when the engine is running fast. No doubt we should obtain the same result by fitting another spring to act in the opposite direction and so break the force of the blow and form a cushion.

W. G. DARGIE.

Improvements in Detail.

[4522.]—Mr. Fred Stuart evidently misunderstood some remarks of mine in a recent letter to *The Motor Cycle*, the tail end of which was, I confess, rather carelessly expressed. My point was not that the valves on my Triumph need specially frequent grinding in (which is certainly not the case), but that, whenever it becomes necessary from any cause (*e.g.*, when scraping deposit off cylinder) to remove a valve, it is more convenient to have a proper valve extractor for the purpose than to run the risk of breaking one of the radiating fins of the cylinder by using a screwdriver or spanner as a lever, which is, I believe, the clumsy resource of a good many riders.

If only this most courteous but busiest of all firms would give me a bayonet-joint fitting for the tops of the gas and air pistons, I would ask nothing more. In conclusion, might I suggest to Mr. Stuart that one of his piston rings is either too tight a fit or else is broken and has jammed, and that if he will unship the cylinder he will probably discover the reason for the suspiciously good compression of his engine after 3,000 miles work. My weight is seventeen stones. AUSTIN LESTER.

Coupling Attachments.

[4523.]—Having noticed in *The Motor Cycle*, which I have taken regularly for three years, that several readers have asked for experiences with a pedal bicycle coupled to a motor bicycle, I beg to say that my wife and I have had some very delightful rides so coupled. My coupler is the Unito. The steering is like an ordinary motor bicycle—after the first mile the passenger attachment is not noticed. Our first ride was thirty miles; no trouble whatever. With long spindles in the front and back wheels of the pedal cycle to enable lock nuts to be fitted the coupling is perfectly safe; of course, we do not take corners at twenty miles an hour. I have taken my wife from East Grinstead to Pevensey Bay, starting on a rise from home and then through Ashdown Forest to Hailsham, plenty of corners from there to the Bay, and she has not had to pedal a stroke on her machine. My motor is a 3½ h.p. Kerry, 1904 pattern. The vibration to passenger is not great. I have not been a passenger, but my wife and a male friend both say they do not notice any to speak of, unless the road is very rough; even then spring forks and a spring seat-pillar would no doubt absorb a good deal of it. The makers' instructions must be carefully followed when fitting, and the measurements noted; after that the attachment may be uncoupled and the fittings carried on either machine when used for solo riding. W. J. AVERY.

Mr. and Mrs. Avery, who use a Unito coupling attachment, their experiences with which are related in the accompanying letter.

Road Dangers at Night.

[4524.]—I have read with interest the letters in your valuable paper on road dangers at night, and should like to tell you what befell me about three weeks ago.

I was coming home from one of my country journeys. It was pitch dark and raining fast, when suddenly I struck something, and when I had picked myself up I discerned that I was in the midst of a dozen or so cows.

I sprained my wrist badly; the lamp and handle-bars were smashed, also the footrests. The repairs cost me 34s., and I had a narrow escape of being very seriously injured. Of course, the drover had no light at all. It is a disgrace that no law compels drovers to carry a coloured light.

F. JOLLIFFE.

A Puzzling Case.

[4525.]—With reference to Mr. Lucas's article, "A Puzzling Case," in the issue of January 10th, I have had exactly the same experience with my 1909 3½ h.p. Humber. Every time I opened the throttle wide the engine would come to an absolute stop, but would start again quite easily just afterwards. This occurred on about twenty occasions, and I managed to find out the cause just before I read Mr. Lucas's article. A new Oleo plug entirely cured the trouble, and I have not had it occur since. I have examined the old (Oleo) plug, which has been over 3,000 miles, and find the points have been fused. Used in this condition the plug retains the heat, and after running the engine fast for some time the points get very hot. On opening the throttle wide the increased heat from stronger explosions causes the points to get white hot, thus exploding the mixture too early. Using a plug in this condition causes the engine to overheat considerably, as the spark does not occur so quickly with an old fused plug as with a new one, consequently more gas has to be given to do the work.

Mr. Lucas mentions that both plugs had been over 1,000 miles, but of course some will last much longer than others. Thanking Mr. Lucas for his straightforward article,

A. C. ROBBINS.

The Transmission Question.

[4526.]—"Civil Engineer" rather oversteps the mark in saying that motor cyclists resemble a flock of sheep. A more shrewd class of men does not exist. He lauds the Whittle belt and criticises the rubber belts. My experience has been entirely different with regard to rubber belts. My last belt—a Shamrock-Gloria—ran seven months (all weathers) without being shortened, and I cannot remember removing the belt from the pulleys during that period. I was not troubled with slipping or fasteners breaking, and I am using the same Stanley hook fastener in a new belt.

My machine is a 3¼ h.p. and fast. Bad weather does not stop me, nor greasy roads, not even in darkness or fog. "Civil Engineer" must be wrong in saying the belt does not wear the pulleys. I find a rubber belt wears my pulleys considerably. He also forgets that if he gets more mileage with a Whittle he loses it in the pulley bearing by extra wear of that part. Perhaps he has not noticed how the old chain-driven machines threw the oil from the sprocket side bearing all over the rider and machine, due to nothing but the rigid drive and no slipping medium, thus wearing the bearing.

Surely he does not compare a Whittle belt with rubber and canvas for flexibility. If the Whittle fits the pulleys perfectly it can only be compared with a chain. With a rubber belt apply the brake to the rear wheel with the engine running on the stand, and watch the belt give without slipping, which must lengthen the life of the bearings a great deal, besides putting no strain on the engine.

Although I have had such satisfactory results with belts, my next mount will be a shaft-driven one, as the belt throws mud all over the machine—my only objection to it.

PONY.

Beaded-edge v. Wired-on Tyres.

[4527.]—I would like to add my experiences to the present little controversy in your columns, "Beaded-edge or Wired-on Tyres." Up to 1907 I always had a standard pattern motor cycle with beaded-edge tyres. In that year the T.T. model was born, and I ran a 1907 standard with beaded-edge tyres alongside, so to speak, a T.T. with wired-on. I had ridden some 6,000 miles when the T.T. came on the scene, and before long it required a very great effort on my part to leave the T.T. in the shed and go out on the standard. I tried all sorts of dodges, changing over wheels, engines, etc., at various times, and came to the conclusion that the wired-on tyre was faster, and enabled the machine to pick up more quickly, and it gave an increased flexibility (incidentally, I lost my taste for the standard frame with pedals). As far as reliability goes, I think I cannot do better than state what happened to my tyres (2in. × 26in. wired-on Dunlops) in each of the last Six Days' Trials.

In 1907 I had seven punctures (due to seven nails), but although these tyres are reputed to be hard to detach, they came off and went back rapidly enough to prevent any loss of marks.

In 1908 I had one thin wire nail through the back cover.

In 1909 I again had one puncture (a nail). My tyres in 1908-9 were in splendid condition at the finish; in fact, in 1908 I called the judges' notice to the state of the treads, for there was not a single scratch visible, and that after crossing the Grampians.

In 1907 I wore out the same number of covers on each machine in approximately the same mileage, roughly, one cover every 2,000 miles on the back and every 3,000 on the front. Once a tyre begins to go I scrap it.

F. C. MUSTARD.

Experiences with a 3½ h.p. and Sidecar.

[4528.]—As the performances of motor cycles with sidecars seem to be evoking considerable interest, the following may interest those of your readers who contemplate sidecaring during this year.

I bought my Phelon and Moore and sidecar in August last, and since then have done about 2,000 miles. I find that the combination will not average more than seventeen and a half miles per hour over give and take roads, but it will climb practically anything on the low gear; I have only had to shed passenger once. If the gear is kept clean, *i.e.*, free from excess of grease, the machine without sidecar will take absolutely anything on top gear solo, and it is a real treat in traffic or on grease, once the rider has become thoroughly at home with the gear manipulation in conjunction with the throttle and half compression levers.

Mr. W. Welford and his 3½ h.p. two-speed P and M. and sidecar. (See accompanying letter.)

The accompanying photograph was taken at the Blackpool Aviation Meeting last October, the run back being made *viâ* Preston, Clitheroe, Skipton, and Boston Spa; a long detour involving something like 160 miles was done in pouring rain and without the slightest trouble.

In conclusion, if one is content to travel at a comfortable jog-trot pace of sixteen to seventeen miles per hour, one need not have any qualms with regard to sidecaring with a P. and M.

W. WELFORD.

Water-cooling on Motor Bicycle Engines.

[4529.]—I was very glad, when opening my copy of *The Motor Cycle* of January 3rd, to read "Ailette's" article on water-cooling of motor bicycle engines, and to find his opinion backed up on January 10th by "Rotator." Whilst both these writers are agreed as to the many advantages which water-cooling would have over air-cooling, both appear to think (especially the latter) that there are a good many obstacles still in the way.

Among some of the drawbacks mentioned are unsightly radiators and water pipe connections, increased weight, and reduced petrol and oil capacity. I am glad to be able to be in a position to tell your contributors and all others interested in the subject that these drawbacks do not exist in the machine I am using.

I was fortunate enough to get hold of one of the few Green's water-cooled engines referred to by "Ailette" about three years ago, and any doubts I may have had as to its many merits were quickly shunted directly I had the opportunity of comparing it with my previous mounts.

My machine has no unsightly pipes and connections, neither is the weight increased beyond the very small quantity of water required (about 3½ lbs. only), and the tank capacity is not reduced. My valves I never look at for many months together, the cylinder and piston remain so free from carbonisation I don't know what premature firing means, and engine starts from cold at any time without having to tinker with a paraffin squirt. The greatly increased power over any air-cooled engine of the same size and its flexibility were a revelation to me, as it is to all my friends.

I may here mention one little incident which occurred last autumn: Whilst out with a friend each with a sidecar and carrying full average weight passengers, my friend's motor failed him, and I was obliged to take him in tow—sidecar, passenger, and all—and except for the stiffest hills neither of them had to dismount for the twenty miles we had to do to get home. This happened when we were in the neighbourhood of Wadhurst, not far from Tunbridge Wells, which will be appreciated by all those familiar with this district.

Since I have had the machine I have driven many thousands of miles over all kinds of roads and in all weathers, both alone and with sidecar and passenger, and have never required to use the pedals—in fact, I have not got any—and, generally speaking, I have been free from many little troubles I used to have with my air-cooled machines.

Lastly, I must not forget to mention economy of running. The saving in this respect is considerable, especially as regards lubricating oil. The consumption of this is ridiculously small.

In conclusion, I can only hope that these few remarks by one who has had the opportunity of putting a new idea to a practical test for a considerable period may prove of some little interest to your readers.

C. CATT.

Of course, the motor cycle is playing a part in the election. The photograph shows Mr. W. Gibbons using his two-stroke Scott motor bicycle and sidecar to convey a voter to the polling station. It is said that the above combination had a great deal to do with Mr. W. Hayes Fisher's success at Fulham!

Lightweights v. Heavyweights.

[4530.]—I notice in Mr. Robinson's letter [4497] his explanation of the weights of the Douglas machines in the M.C.C. petrol consumption trial last September. The fact that it was necessary to weigh up the machines in order to benefit by the 30% extra allowance of petrol (which was really intended for heavyweight machines) shows in my opinion that the makers had not much faith in their standard machine winning on petrol consumption.

With all due respect, I would like to remind Mr. Robinson and your readers that all machines, lightweights included, were hopelessly beaten in this trial by a heavyweight machine, namely, Mr. R. C. Davis's 5½ h.p. Griffon, which did many more miles per gallon than any other motor cycle. The fact that I was an assistant at the scales does not prevent my referring to the weights published in your paper. If Mr. Robinson will read my letter [4455] again he will see it is not I who assume the weight of the Douglas to be 150 lbs. I only gave the published weights. When Mr. Robinson says that I rushed into print he is entirely wrong, as it was only after some weeks' consideration of this matter that I decided to refer to it in a letter. Personally, I do not think the general public cares a brass button whether a lightweight will do 133 or 233 miles to the gallon so long as it will wear well and is reasonably comfortable for the purposes for which it is intended.

May I repeat that I have nothing but admiration for the Douglas machine and its performances, but that I fail to see how a machine weighing 120 lbs. in riding trim can be termed a lightweight. Rather would it be better at once to acknowledge it as a medium weight machine.

HAROLD KARSLAKE.

[4531.]—I canot let Mr. B. G. Durkin's letter in the issue of December 27th go unanswered, as I am neither "over forty and married," nor are my "nerves in such a state that I avoid all towns." On the contrary, I am younger and in quite the same condition as he describes himself to be, and yet I prefer a lightweight for all the year riding to a heavyweight. My experience is considerably longer than his, and on machines from 1¾ h.p. to 6 h.p. My present machine—a 2¼ h.p. Moto-Rêve—is the easiest machine imaginable in traffic, as it will run so beautifully slowly. I grant him that the maximum available speed is lower, but then I can always average well over the legal limit for hours at a stretch. Because he finds more pleasure in a high-powered heavyweight it is no reason for him to run down all others. I should like Mr. Durkin to drive his machine every day, say, from Clapham to Highgate for a week, and then do the same with a lightweight, and say which he prefers.

G. L. ANDREWS.

EXPERIENCES WANTED.

"H. B. R." (Monkstown) would like readers' experiences with the A.S.L. motor bicycle.

"Enquirer" (Hampstead) would like readers' experiences with the A.C. sociable tricar, particularly with regard to reliability, silence, hill climbing, cost, and comfort.

"Second-year" (Wakefield) would like readers' experiences of a 1909 Humber two-speed model.

THE MOTOR CYCLE IN THE UNITED STATES.

By EARLE L. OVINGTON.

I WAS very much surprised, as well as somewhat grieved, to read in the issue of January 3rd the article by "Transatlantic," entitled "The Motor Cycle in the United States." As one who is thoroughly acquainted with motor cycle conditions—not only in the States, but in Great Britain as well—I am, perhaps, qualified to criticise this article.

If the friend mentioned by the author of the article had not actually visited the States I should have concluded that he had been misinformed with regard to the actual conditions of affairs. However, I can only assume that in examining American motor cycles he was unfortunate enough to come in contact only with old models: and even if this were the case some of the statements are not correct.

Taking the article as a whole it is entirely misleading, and contains many statements that are absolutely false.

Different Countries have Different Ideas.

To be specific, it is to be expected that motor cyclists on this side of the water have certain ideas which, it is not surprising to learn, differ materially from those held by enthusiasts of the motor cycle in the States. If we prefer a certain type of tank, a certain frame outline, and, perhaps, rather brilliant enamels, it seems to me we have a perfect right to use these, and it is a little unfair for motor cycle enthusiasts outside the States to criticise our tastes, much less to say that they do not follow good engineering practice. There are certain fundamental principles, however, involved in motor cycle design, and in whatever country the motor cycle is made these should be followed. As far as mechanical construction and efficiency are concerned, we motor cyclists of the United States welcome the criticism of our English cousins; but as far as the appearance of the machine is concerned, that is something which we must decide for ourselves, and which is governed by our own tastes.

"Transatlantic's" friend states: "Very few makers have yet adopted the magneto as standard, though many are ready to fit it as an extra." That was the state of affairs about two years ago. Last year practically every prominent maker marketed a magneto machine as standard, and this year I do not know of a single exception where this is not the case.

"Some of the few stands I saw were worse than useless." If this is the case, all I can say is that the stand, which is practically a regular equipment on all the prominent makes, was a direct copy of the stand used on the Vindec, which is the identical type used on most of the English machines. We have found it very efficient indeed; in fact, as far as I have been able to observe, it leaves nothing to be desired.

Frame Design.

As to the advantage of using the loop type of frame with the engine bolted to clips, or what "Transatlantic's" friend calls a straight tube frame, where the engine is clamped to the frame and the crank case serves as a part of the frame structure itself; here again opinions differ. Looking at it from a strictly engineering standpoint, I believe that the loop type of frame is, if anything, stronger than the straight tube type, and I believe it is an error when he states that the latter type of frame is lighter than the former. In one case we have a firm mechanically-correct frame, and in the other we have tube members of the frame divided in order to introduce the crank case of the engine. Again this is a matter of appearance, for I think there is little to choose between the two types from an engineering standpoint.

There is one very good criticism of American machines which says that the exhaust piping is often long, thin, and full of bends. Americans attach a good deal of importance to appearances, and the type of tubing described is often necessary in order to place the silencer behind the bottom bracket and just clear of the rear wheel. The very fact that American engines give the service they do with such an exhaust pipe, and that we have so little trouble with our exhaust valves, seems to me to speak volumes in favour of American engine design.

Reliability Contests.

The paragraph which reads, "Of course the majority of American makers have never had to cater for reliability in the same sense that our makers regard it, for most of their customers only use their machines for short excursions to suburban resorts, the country roads being so unspeakably vile," is, I am afraid, the opinion of one who does not read our motor cycle periodicals, nor does he follow very closely reliability runs in the United States. British reliability contests usually extend over a greater time than ours, but as far as strenuous riding is concerned I do not think British riders really know what it is. On our endurance runs we often strike sand six or eight inches deep for many miles at a time, hills several miles in length with a very rough road surface, and it is not at all unusual for a motor cyclist to be thrown violently from his machine by being forced to ride over a rock larger than his head.

At the conclusion of the article it is acknowledged that a large percentage of our riders get through these endurance trials with credit; that is not because such contests are not made difficult enough, but because many of our riders are expert in driving a motor cycle over very rough roads with locomotive-like regularity.

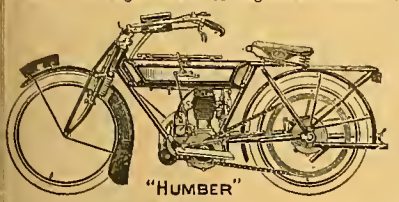
The Transmission Question.

The statement that the chain drive is an easy winner over the belt, that it is simply due to the shoddy nature of most Yankee belts, and that it is impossible to obtain a decent belt of American manufacture, is quite erroneous. It may be of interest to "Transatlantic" and readers of *The Motor Cycle* when I state that from my positive knowledge there is not a single prominent American manufacturer of belt-driven machines who does not use a foreign belt, and in every case—with one exception—the belt is the Shamrock-Gloria canvas and rubber belt, used so universally in England. The one maker who is the exception uses your own leather Watawata belt.

Taken as a whole, therefore, the article by "Transatlantic" does a great injustice to the American motor cycle industry; and from the statements made "Transatlantic" has shown that he is in one of two positions—either he is not as well informed as he would lead us to believe by his article, or else he is wilfully trying to mislead the motor cyclists of England.

QUALITY.

'e have the largest stock of High-class Machines.



"HUMBER"

ist received from makers, a few

1909½ HUMBERS

nd new. These you can hardly tell from 1910 models, g fitted with improved pattern silencers, spring forks. er pulleys, Roc licensed two-speed gear, H. B. control stered tank, high tension magnetos, Dunlop tyres, oil ip operated by foot, stand and carrier, toolbag with ools fitted to handle-bar. Fully guaranteed.

£42 10s., or exchange, or credit.
SPECIAL DISCOUNT FOR CASH.

09½ SINGLE SPEED HUMBERS.

rand new, fitted with latest pattern silencers, spring s, magnetos, pedalling gear, stand, carrier, toolbag, s, number plates,

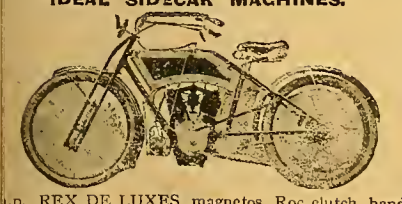
£37 15s., exchange or credit.

ash offers wanted. Why buy second-hand machines n brand new, up-to-date, fully guaranteed machines be had at these prices. Remember number is limited.

NEW 1909 ARNOS.

'e have a few Brand New 3½ h.p. Models, fitted with netos, h.-b. control, complete with tools, etc. ist price, £45. Our price, **£32 10s.** Or exchange. Cash offers wanted.

IDEAL SIDECAR MACHINES.



.p. REX DE LUXES, magnetos, Roc clutch, handle starting, spring forks, spring seat. plete with sidecar, **£27 15s.** Or exchange. Cash offers wanted.

edit or Exchange. Send for List.

.p. QUADRANT, 1909, Roc two-speed	£32 10
.p. MINERVA, magneto, French grey	£22 10
.p. ARNO, magneto, H.B. control, new	£32 10
.p. ARNO, magneto, new, non-skid	£32 15
.p. ARNO, magneto, new, Palmer's	£33 10
.p. HUMBER, new, 1909 model	£39 10
.p. REX, 1909 Tourist, solled only	£32 10
.p. 1909 DOUGLAS, like new	£32 10
.p. REX, 1909 model, like new.....	£32 10
.p. Twin BROWN, 1908, magneto, free engine	£28 10
.p. BAT magneto, spring frame, two speeds..	£24 10
.p. TRIUMPH, 1909, nearly new	£35 0
.p. TRIUMPH, 1908, good order	£30 0
.p. HUMBER, 1909, two speeds, non-skids ..	£37 10
.p. MINERVA, magneto, 2¼ tyres.....	£18 15
.p. LLOYDS, vertical engine, 26in. wheels ..	£8 15
.p. 1909 HUMBER, two speeds	£37 10
.p. N.S.U., magneto, 2¼in. tyres, long bars ..	£22 10
.p. N.S.U., magneto, 1908, smart	£17 10
.p. REX, 1908, magneto, h.b. control	£17 10
.p. REX, 1909, nearly new	£32 0
.p. REX DE LUXE, Roc clutch, magneto ..	£25 10
.p. TWIN MINERVA, magneto, spring forks	£22 10
.p. TWIN REX, spring forks, low built	£16 10
.p. REX, spring forks, trembler coil	£10 10
.p. REX, 26in. wheels, M.O.V., h.b. control..	£8 15
.p. QUADRANT, 1908, magneto, M.O.V. ..	£25 10

end for list of 200 machines. Cash buyers receive cial quotations.

THIS WEEK'S SPICY BARGAIN.

h.p. QUADRANT, in good running order, complete h coil, belt, accumulator, number-plates, etc.

£4 19s. 9d. £4 19s. 9d. £4 19s. 9d.

Ve will reserve machine upon receipt of £1 deposit, and ept balance 5/- weekly.

1,000 waiting for good magneto machines. What have you to sell?

BOOTH'S MOTORIES,
CHARLES STREET, off Square Road,
Phone 1062. **HALIFAX.** 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

FOR Sale, two 1908 Triumphs, in first-class condition.—For particulars, apply J. L. Balmforth, Ormskirk, Lancs.

3½h.p. Ariel, Moseley's non-skid, perfect and powerful. £12; rigid reversible sidecar, £3.—Rawcliffe, Billington, Whalley, Lancashire.

3h.p. Fafnir, Chater-Lea frame, H.B. control, tyres nearly new, with Liberty sidecar, good order; £17 10s., offers.—Day, Brick Co., Selby, Yorks.

5-6h.p. Vindec, Peugeot engine, Bosch, handle-bar control, B. and B., pulley, silencers, complete, perfect order; £13.—Cross, Agent, Rotherham.

3½h.p. Triumph, 1907, magneto; £17 just been spent on same, everything renewed, perfect condition; £22.—Bennett, 34, Dicconson St., Wigan.

1909 Triumph, free engine model, condition as new, spares, horn, etc., run 900 miles, guaranteed; £44 cash.—Hardman, jun., 3, Bromwich St., Bolton.

LIGHTWEIGHT Douglas and F.N. motors, latest models in stock at 74, Bold St., Liverpool.—Hitchings, Ltd., are the sole agents, and invite enquiries.

3h.p. Humber Cycle, free engine, 26 wheels, very low, £12, honestly worth £20; quad back axle and front wheel, new tyres, cheap.—Lamb, Lord St., Rochdale.

1908 (October) 6h.p. Twin Peugeot, magneto, H.B. controls, all refinements; £27 10s., or exchange single or lightweight and cash.—13, Snn St., Pitsmoor, Sheffield.

5-6h.p. Twin Rex, spring forks, cantilever seat-pillar, new tyres; a bargain; will accept 13 guineas.—Taylor, 21, Beatley Grove, Meanwood, Leeds. Seen by appointment.

1909 Triumph, not been ridden 200 miles, Polkey lamp and generator, trinote horn, new last August; price £37.—Wilson, 19, Wellington St., Bradford, Manchester.

TRIUMPH 1910 Motor Cycle, delivery from works in ten days; would make small sacrifice, having bought car.—Letters only, Thwaites, 14, Baldovan Place, Roundhay Rd., Leeds.

5h.p. Twin Rex (1908), spring forks, magneto ignition, enamelling and plating in first-class condition, tyres as new, automatic adjustable pulley; £26, or offer.—28, Dock St., Leeds.

PHELON and Moore, 2¾h.p., accumulator, bought end 1907, registered June, 1908, handle-bar control, spare valves, etc.; £25; owner bought 1910.—Hardman, Yeadon, Yorkshire.

1909 Triumph, perfect order, £32; 1907 Triumph, £26; 3½h.p. Quadrant, £17 10s.; 2¾h.p. Clyde, low tension magneto, £5; 2¾h.p. Humber, chain drive, £6 10s.—Corr, Fleet St., Bury.

MOTO-REVE, twin-cyl., lightweight, 2h.p., latest 1909 model, magneto, Druid spring forks, not ridden 200 miles, splendid hill-climber; cost £40, accept £26.—Hancock, Westbrook Mill, Sheffield.

TRIUMPHS, immediate delivery, come and see me before purchasing your 1910 mount, any make supplied; second-hand Triumphs taken in part payment.—Triumph Agent, 53, Trafford Rd., Salford.

READY for Delivery.—1910 Premier, 3¾h.p., twin, quite the coming success, and undoubtedly the finest little jiggers on the market; 50 guineas; exchanges entertained; send for list.—Hardman, Stockton Heath.

N.S.U., 3½h.p., magneto, perfect order, Amac, padded saddle, Lucas King of the Road headlight, separate generator, full kit of tools, spare belt, valves, tube, etc.; best offers taken.—J. Whitehead, 34, Clyde St., Oldham.

3½h.p. Fafnir, Whittle, Chater-Lea No. 6 frame, adjustable pulley, swan-neck saddle, enamelled grey, footboards, very fast, and nearly new camera, accessories; cost £10, exchange for modern twin motor cycle.—Short, Spread Eagle Yard, Chesterfield.

POWERFUL 3½h.p. Rex, accumulator, with Montgomery flexible sidecar; £17; sell together or separately, or exchange magneto lightweight, cash adjustments.—Griffiths, 31, Downing St., Ardwick, Manchester.

1907 Triumph, new 1908, excellent condition, sound, real beauty, new special non-skid tyre and tube cost 45s., new belt, large horn, lamp, and two-way generator, H.B. control, spare tyre, valves, etc.; complete for £26.—8, Roscoe St., Middlesbrough.

SCOTT 2-stroke 2-speed Water-cooled Motor Cycles (for which Hitchings, Ltd., are the sole Liverpool and district agents), should be ordered now to ensure early delivery; send for descriptive catalogue.—Hitchings, Ltd., 74, Bold St., Liverpool.

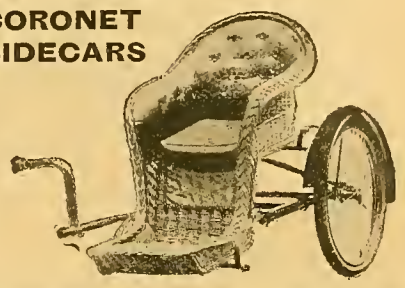
ABSOLUTELY a Gift.—3-3½h.p., vertical engine, 26in. wheels, tyres fair condition, low frame, spring forks, Minerva carburetter, stand, etc., only fault frame wants slight repair, best offer above £4 10s.—53, Trafford Rd., Salford.

7h.p. Matchless-J.A.P., 1909, perfect condition, new Shamrock 2¼in. tyre, J.A.P. automatic carburetter, adjustable pulley, two extra tubes, lamp, horn, watch, tools, spares; complete, £37; splendid machine for sidecar; ride 50 miles.—Rimmer, 58a, Standishgate, Wigan.

LIVERPOOL Motorists should, to protect their interests, buy Triumph, Douglas, Scott, and F.N. motors only from the responsible official agents, Hitchings, Ltd., 74, Bold St., who alone can substantiate the makers' guarantees, and also supply spare parts from stock.

BOOTH'S MOTORIES
SPECIALITIES.

£4 17s. 6d.
CORONET SIDECARS



Before buying a Sidecar, send for illustrated circular explaining the advantages of "CORONET" Sidecars over other makes. Delivery from stock to suit Minervas, Rexes, N.S.U.'s, Triumphs, and any other make. Attached in three minutes.

Price £4 17s. 6d. Discount to trade.

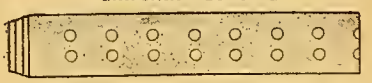
CORONET ADJUSTABLE PULLEY.

12/6

The best variable speed pulley on the market. Loose flange securely held in any position by a simple yet ingenious contrivance. Gear can be altered without the aid of spanners, lock ring easily operated by hand. Buy a "Coronet" pulley and gear your machine suitable for hill-climbing.

Standard makes, such as Rexes, Triumphs, Minervas, supplied without the necessity of sending old pulley for pattern. **Discount to trade.**

"GRIPSKIN" BELTING.



Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

⅝in., **10d.**; ¾in., **11d.**; ⅞in., **1/1**; 1in., **1/2**.
Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

NEW DUNLOP AND CLINCHER COVERS.

24 or 26 or 28×2in.	17/-
24 or 26 or 28 x 2¼	17/6
24 or 26 or 28×2½in.	18/-
Clincher Tubes, all sizes ..... each	4/11
28×2 or 2¼in. Dunlop Wired Covers ..... „	11/6
24×2¼in. Clipper-Reflex Beaded Covers .... „	14/6

Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from **59/6**. Your old coil and acc. taken in exchange.

CARBURETTERS.

BROWN AND BARLOW. AMAC.

Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters. Be up to date. Price reasonable.

MISCELLANEOUS.

Mudguards and Stays 3in., 2/11, 4in.,	3/6
Silent Silencers for engines to 5 h.p.	3/3
Long Handle-bars, well plated ..... 5/6 and	6/6
500 Fuller Midget Trembler Coils	17/6
200 Fuller Plain Coils (your old coil taken in exchange)	10/6
250 Mirror Lens Lamps, with generators	14/9
50 Pairs New X'lall Spring Forks, latest	15/-
Longuemare, Minerva, F.N. carburetters .... each	5/6
Osborne Four-speed Gear, fit Rex	35/-
Albion Free Engine Clutch, fit Rex	29/-
Mabon Free Engine Clutch, fit Triumph	39/-
New Oppermann Three-speed Gear-box, cost £11..	£5
Good Forecarriage, complete, with tyres.....	£2 19s.
Light Car Frame, with springs and wheels	£2 10s.

ENGINES.

3 h.p. Motor Boat Engine, two flywheels, fitted with propeller, pump, carburetter, and silencer	£8 10
4½ h.p. Coronet, M.O.V., water-cooled, new	£7 15
3½ h.p. De Dion, water-cooled	£5 15
4 h.p. Twin Standard, wants overhauling	£2 5

EXCHANGES ENTERTAINED.

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), HALIFAX.
Telephone 1062.

MOTOR BICYCLES FOR SALE.

BRADBURY, 2½h.p., 1907, good condition and running order, Clinchers; good accumulator, just overhauled by makers; what offers?—Hinchcliffe, Upper Bridge, Holmfirth.

TRIUMPHS.—Hitchings, Ltd. (the official agents), have several second-hand machines for sale at low prices, 1907, 1908, and 1909 models; all guaranteed; inspection invited.—Hitchings, Ltd., 74, Bold St., Liverpool.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

2¾h.p. Kerry, just re-bushed, long bars, good tyres; bargain, £6.—Adams, Wilfred St., Derby.

TRIUMPH, 1909, little used, excellent condition, back wheel fitted with three-guinea non-skid, guaranteed; £36.—Moss, Wem.

MINERVA Lightweight, 1¾h.p., new back tyre and belt, good condition; £7 10s.—Atkins, Ketley Bank, Oakengates, Salop.

1908 Triumph, little used, splendid condition, completely fitted, every spare; £33.—Pemberton, 8, Linon Grove, Hale, Cheshire.

MIDGET Bicar, Fafnir, M.O.V., nearly new Hutchinson engine, perfect, 1910 B. and B., new Simms magneto; £24.—Call at any time, Soden-Brown, Lichfield St., Wolverhampton.

F.N., 5-6h.p., 1909 model, perfect, new tyres, R.O.M. back, Continental rubber non-skid front, complete, watch, reflector, Autoclipse lamp, spare tube, horn; £32; owner obtained post Navy.—Apply, The Triplex Co., Wrexham.

5-6h.p. Twin Rex, and Duplex steering, Millford sidecar, good condition throughout, reliable, all spares; 30 mile trial to purchaser in sidecar; combination £20, without sidecar, £15 10s.; Rex pulleys, 4in. and 5in., 1s. each.—Smith, Rose Cottage, Wednesfield.

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

3½h.p. Vindec, magneto, thoroughly sound order, long handle-bars; £17.—E. J. Hill, Holbeach, Lincs.

FOR Sale, Bradbury, 3½h.p., handle-bar control, new last July; £28.—Apply, 60, Richmond Rd., Lincoln.

REX, spring forks, up to date, and genuine tyres, as new; offers.—Smith, Harts Garage, Moor St., Birmingham.

1¼h.p. Motosacoche, accumulator ignition, excellent condition, very reliable; £12.—205, Broomfield Rd., Coventry.

2h.p. F.N., perfect, Continental belt, studded tyres, long bars, spares, overhauled; £9.—B. Smith, Woodthorpe, Notts.

MOTOSACOCHE, complete, square, spring forks, new back tyre, good condition; £13.—Daws, 35, Tennyson St., Leicester.

CHASE, 5½h.p., magneto, h.b. control, Palmer tyres, low, just overhauled, re-enamelled; £20.—34, Wellington Rd., Smethwick.

1909 Triumph, Clincher tyres, S.G. belt, splendid condition, climb anything; a bargain, £35.—Palmer, Butcher Row, Coventry.

4h.p. Twin, Peugeot engine, 21in. frame, 26in. wheels, fast and reliable; photo; bargain; 14 guineas.—Morris, photographer, Bourne.

TRIUMPH, late 1908, splendid condition, new Palmer cord tyres, spares; £32, no offers.—C. W. Blythe, 17, Market Place, Coventry.

THE Largest Stock of Motor Cycles and tricars in the Midlands is at the C.C.R. Motor Works, Ford St., St. Ann's Well Rd., Nottingham.

1909 Free Engine Triumph, overhauled Xmas, perfect condition, £5 worth spares; £40.—Box No. 3,936, *The Motor Cycle* Offices, Coventry.

3½h.p. Rex, low, and fast, B100, 26in. Peter Unions, B. and B., splendid order, spring forks; £14.—Billiard, 47, Church Gate, Loughborough.

1909 Humber Two-speed Motor Cycle, Druid forks, Dunlop studded, scarcely soiled; accept £34, complete.—358, Stratford Rd., Birmingham.

3h.p. Clyde, magneto, brass torpedo tank, h.b. control, spring forks, low, accessories; £12; can be ridden away.—Perkins, 9a, St. Mary's St., Stamford.

4¼h.p. Minerva, Chater fittings, Ideal fan, front wheel to convert, two accumulators, spares, Matchless exhaust, Grose back, just overhauled; £16.—Owen, Bidford, Warwickshire.

3½h.p. Quadrant, little used, surface coil and accumulator, new spring forks, 20th Century lamp, horn, belt, etc., excellent condition throughout; owner bought tricar; £12 10s.—No. 3,928, *The Motor Cycle* Offices, Coventry.

3½h.p. Phelon-Moore and Mills-Fulford castor sidecar, new September, ideal combination, two lamps, two horns, and many spares, including tube, etc.; cost nearly £70, take 46 guineas; expert examination invited.—Welford, 251, Mansfield Rd., Nottingham.

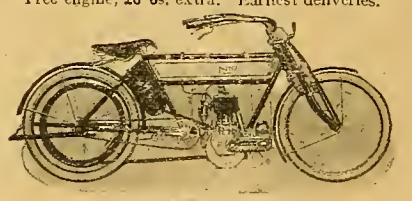
MAUDES' MOTOR MART

HALIFAX AND LONDON

Sole Yorkshire Agents for the T.A.C. Motor Cycle de Luxe.
Sole London Agents for the NORTON.
Sole Halifax Agents for TRIUMPHS, DOUGLAS, PHELON MOORES, BRADBURYS, etc., etc.
Every 1910 model we sell or offer for sale carries the makers' full guarantee regardless of whether sold for cash or exchange.

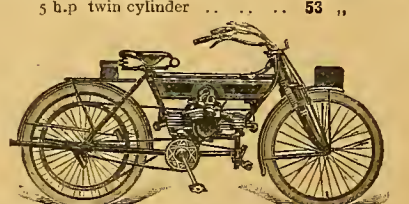
1910 TRIUMPH.

Standard model £48 15
Tourist Trophy model £50 0
Free engine, £6 6s. extra. Earliest deliveries.



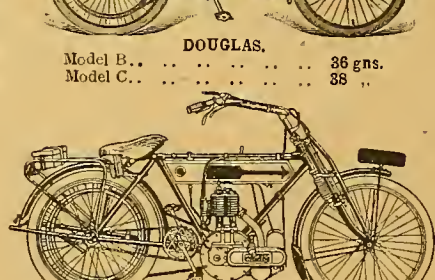
NORTON.

3½ h.p. single cylinder .. .. 43 gns.
4½ h.p. single cylinder .. .. 45 ,,
5 h.p twin cylinder .. .. .. 53 ,,



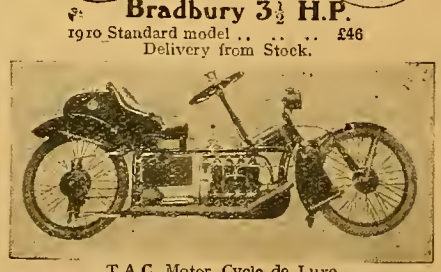
DOUGLAS.

Model B.. .. .. 36 gns.
Model C.. .. .. 38 ,,



Bradbury 3½ H.P.

1910 Standard model £46
Delivery from Stock.



T.A.C. Motor Cycle de Luxe.

Standard model .. .. 60 gns.
Wheel-steering .. .. 63 ,,
Wheel-steering de Luxe .. .. 70 ,,
Discount to cash buyers.

HUMBER

1910 3½ h.p. two-speed £50 0
1910 3½ h.p. Standard £45 0

Twin Premier 3¾ h.p., maker's price 50 gns. Our price £48
See "Motor Cycling" for list of second-hand machines.

LISTS POST FREE FROM

MAUDES' MOTOR MART,
Powell Street, HALIFAX.
'Phone: 433. Telegrams: "Petrol, Halifax."
136, Great Portland Street, LONDON, W.
'Phone: 552, Mayfair. Telegrams: "Abdicate, London."

MOTOR BICYCLES FOR SALE.

IVAN B. HART DAVIES wishes to sell his End-to-end Triumph, 85 by 88 engine, two gallon tank, special handle-bars, spare butt-ended tube, all tools and spares, lamp, horn, etc., run 2,000 miles, as good as new, £40 cash.—Apply, I. B. Hart-Davies, Bank St., Rugby.

3½h.p. Humber, two-speed and free engine, new last June, since overhauled by makers and fitted with 1910 improvements, including Druid spring forks, plain connecting rod bearing, new footboards and control, large belt pulleys, complete with lamp and tools, Dunlop tyres (unpunctured); £34, or nearest; bargain.—G.S., 37, Northumberland Rd., Coventry.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon and Bedford.

2¾h.p. Minerva, spring forks, perfect; bargain, £11.—Neal, 11, Milford St., Cambridge.

5-6h.p. Twin Rex, magneto, two-speed, new, only 100 miles; extraordinary bargain, £35, or near offer.—Mann, Egerton, and Co., Ltd., Norwich.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

1909 Triumph, new April, perfect, recently overhauled Triumph works, studded Clinchers, butt-ended, Lucas guinea horn, spare belt, two valves; £35, or exchange twin, 1909, 5-6h.p. F.N.; approval willingly.—Tregaskis, Taffs Well, Glam.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

2¾h.p. Minerva Motor Cycle, good condition; £8, or nearest offer.—H. Cook, 28, Audley St., Reading, Berks.

TRIUMPHS, 1910 models in stock; order at once for early deliveries.—Sole Agent, Longman, Fisherton, Salisbury.

4-CYL. F.N., 5-6h.p., in good order, what offers; also ¾h.p. dynamo, £3.—Hutton, Willow Cottage, Mapledurwell, Basingstoke.

MINERVA, fast, reliable, splendid condition, new tank, Dermatine belt, stand, spares; approval; guineas.—Rodwell, Oxford.

1907 3½h.p. Minerva, spring forks, footrests, h.b.c., adjustable pulley, low frame, tyres excellent condition; £13.—Apply, Hardy, New College, Oxford.

1909 Triumph, new in November, had little use, Lucas lamp and generator, spare belt and lot of other spares, horn, etc.; £40.—Below.

1909 3½h.p. Speed King Rex, excellent condition and running order; £35.—Below.

1909 Triumph, Lucas lamp and generator, Cowey speedometer, horn, spare belt and tube, carrier, lot of other spares; £38.—Below.

1910 Triumph, not been ridden 400 miles, perfect condition, horn, etc., had very careful use; £46.—Below.

FULL Particulars of the above machines, with second-hand list, on application to Morris, Garage, Oxford.

2h.p. F.N. Motor Cycle, £8; also 3½h.p. Humber, two-speed, free engine, £9 10s.; both in good working order.—Nanukieville, 137, High St., Eton, Bucks.

GRIFFON, 2¾h.p., M.O.V., Zedel, vertical, low, new Hellesen coil, battery, new h.b.c. B. and B., 26in. wheels, ¾in. Shamrock, smart machine; trial: £10.—D. 11, High St., Maidenhead.

3h.p. Fafnir, 2h.p. Brown, Duco headlight, separate generator, plain coil, large horn, voltmeter, accumulator, one motor frame; £16 10s. lot, or separate; nearest offers.—Priest, Market Sq., Chesham, Bucks.

REX, 3½h.p., magneto, 1908, steel studded belt, Amac carburetter, beautiful condition, little use, accessories, stand, carrier, etc., spare belt and Continental cover; £27 10s., offer.—No. 3,830, *The Motor Cycle* Offices, Coventry.

5h.p. Two-speed V.S., new non-skid tyres, h.b.c., spare tube, Clair silencer, numerous accessories, Moore-gomery, almost new flexible non-skid sidecar; £40; take perfect late 1908 Triumph part payment.—N.M., 14, Banbury Rd., Oxford.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

1¼h.p. Motosacoche, perfect order; £15 10s.—112, Hamlet Court Rd., Westcliff-on-Sea.

WAUCHOPE'S will help you in exchange.—Or address, 9, Shoe Lane, Fleet St., London.

2¾h.p. Kerry, in good order; must sell; £10.—Whitaker, Green Street Green, Orpington.

F.N., 2¾h.p., in good condition; no reasonable offer refused.—E. Hunnisett, Forest Row, Sussex.

SPECIAL.—Triumph, unused; first cheque £42.—12, Romford Rd., Stratford. Tel.: Stratford 243.

In answering these advertisements it is desirable to mention "The Motor Cycle."

OTOR BICYCLES FOR SALE.

Fafnir, low Chater-Lea frame, long bars, little sed; £12.—R. Sparkes, Florist, Yapton, Sussex.

GLAS, 1909, equal to new; sell with spares £30; genuine bargain.—Davey, 16, High St., Brentwood.

Lightweight, in splendid running order, new front re; £7.—12, Well Winch Rd., Sittingbourne, Kent.

ELSIOR, 3½h.p. M.M.C. engine, very comfortable, enuine condition; £10.—136, Gray's Inn Rd., W.C.

EDEEMED 3½h.p. Kerry, £10; 4h.p. Zedel, £20; 909 Triumph, £30.—Matthews, pawnbroker, Croy-

Y do Nye's sell so many machines? They give satisfaction. Try them.—69, Leather Lane, Hal-

DION, 2¾h.p., h.b. control, new accumulator and res, spring forks, Watawata; £11.—Grange, Scu-

. De Dion Type Twin, Triumph style, tank, low built, fine goer; £15 10s.—128, High Rd., Tot-

. Rex, splendid condition; accept £15, or offer. —Apply, F. Matthias, 76, Battersea Rise, Lon-W.

. Minerva, good condition, Chater low frame, tyres as new; £7.—Fairmead, builder, Melville Rd., Wal-w.

RVA, 2¾h.p., low, fast, torpedo tank, just over-auled; £7; footboards.—4, Wavel Mews, Kilburn, , N.W.

. Minerva, Chater-Lea, new Dunlop tubes, cover, less accumulator, perfect order; £3.—23, Hayter ixton.

. Excelsior, perfect, just been overhauled, Longue-mare carburetter; £12.—Creighton, 54, Coayers reatham.

. Minerva, in first-class condition; can be seen running at any time; £14.—B., 69, Three Mill Bromley, E.

. Rex, 28in. wheels, new accumulator, tyres nearly new; £10 10s., or near offer.—Wade, t. Bognor.

Triumphs and 1910 Humbers in stock; your present machine and cash for one.—128, High ttenham.

TTLES.—F.N., 5-6h.p., 4-cyl., latest model, mag-neto, H.B. control, spring forks, nearly new, un-ed; sacrifice £32 10s.

TTLES.—F.N., 4½h.p. 4-cyl., magneto, spring forks, new R.O.M. tyre, beautiful condition; heap; offers.

TTLES.—Minerva, 3½h.p., £7 15s.; also 2¼h.p. Minerva, £6 15s.—Whittles Motor Exchange, ld, Wandsworth. Exchanges entertained.

Triumph, in perfect order, complete with acces-sories; nearest offer £40.—Spring, Latchmere Rd., n-on-Thames.

RY (Sarolea), 2½h.p., Chater frame, Brooks saddle, Dunlops and spares; sacrifice £4 15s.—Merlyn, ixton Rd., S.W.

. De Dion, Chater-Lea frame, spring forks, H.B. control, with light sidecar, complete; £14.—29 ny Boxley Heath.

. M.M.C. spring frame Bat, £10; 4h.p. M.M.C. engine, £5 10s.; De Dion carburetter, 12s. 6d.—nfield Rd., Brockley.

. Rex, B. and B. handle-bar control, long bars, low seat, racy; £10.—F. Jenny, Leighton Holme, Green, Surrey.

. Spring Frame Bat, new tyres, butt-ended tubes, new belt, guaranteed perfect; £13.—7, Lansdowne Upper Norwood, S.E.

MPH, 1909, splendid condition, Autoclipse lamp, d spares; £33; seen any time; no offers.—44, ld St., Wandsworth, S.W.

ORE definitely deciding, call or write Wauchope's; tention at all times.—Wauchope's, 9, Shoe Lane, t., London, E.C. Off Ludgate Circus.

. 1908 T.T. Triumph, tyres uncut, very low and fast, mirror lamp, spare valves, belt, cover, and £27.—229, Burdett Rd., London, E.

ou Want Bargains in second-hand motor cycles ou can get them at Wauchope's, 9, Shoe Lane, t., London (just off Ludgate Circus).

MPH, 1908, in perfect condition. Clincher studded tyres. Autoclipse lamp, all accessories; pproval.—Eagles and Co., High St., Acton.

MPH, 1908. Mabon clutch, perfect condition, incher studded, Autoclipse, accessories; £33; y time.—12, Sutherland Rd., W. Ealing.

. Motor Cycle, perfect condition Bosch magneto, 18in. frame and spares; seen after eight; £18.—ld. 86, Prebend St., Islington, London.

Clutch and Two-speed Gear, 3½h.p. (about) motor cle, spring forks, h.b. control, low, just overhauled; ly must sell, £16.—Roe, 17, Kenmure Rd., Mare ckney.

AUR, 4h.p., M.O.V., chain drive, Mabon clutch, b.b. handle starting, 26in. wheels, and Mont-flexible sidecar, new; £16.—48, Walton Rd., olesey.

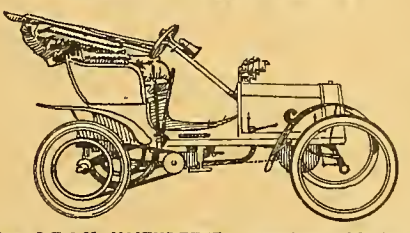
The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

BRAND NEW 1909



5½ h.p. O.T.A.V. VOITURETTES, complete with hood, lamps, tools, and spares, **£60.** Exchanges considered.

1909 REXES. 1909

Brand new and fully guaranteed.

1909 3½ h.p. Tourist REX	£38
1909 3½ h.p. REX DE LUXE, 2-speed	£43
1909 5 h.p. REX DE LUXE, 2-speed	£50

1910 REXES. From £42 Liberal Exchanges.

Deliveries from stock.

SIDECAR MACHINES.

1909 5 h.p. TWIN REX, nearly new	£32 10
1908 Twin Tourist REX, magneto	£26 10
1908-9 four-cyl. F.N., fine condition	£25 10
1908 Two-speed REX DE LUXE, new	£40 0
1908 REX DE LUXE, magneto	£32 10
1907 Twin Magneto REX, spring forks	£20 0
1907 5½ h.p. Twin REX, spring forks	£16 16
6 h.p. Twin N.S.U., magneto, 2-speeds	£24 10
7-8 h.p. Twin MINERVA and N.S.U. Sidecar	£29 0
Twin WERNER Lightweight, spring forks	£12 10
5½ h.p. REX DE LUXE, Roc clutch	£25 10
6 h.p. Twin ANTOINE, extra good	£18 10
Twin CLEMENT, spring forks, spray	£9 14

"POPULARS."

3½ h.p. Magneto Triumph, brand new	£43 10
1909 3½ h.p. Magneto REX, nearly new	£32 10
1909 3½ h.p. REX Speed King, as new	£35 0
1909 3½ h.p. two-speed HUMBER	£32 10
1908 3½ h.p. Magneto REX, spring forks	£24 10
1908 3½ h.p. 2-speed REX DE LUXE	£30 0
1908 3½ h.p. N.S.U., spring forks, as new	£26 10
4 h.p. ROC, magneto clutch, good	£24 0
1908 3½ h.p. Mag., N.S.U., spring forks	£21 0
4 h.p. ANTOINE, high tension magneto	£18 18
3 h.p. Magneto SIMMS, 2¼in. Palmers	£16 10
3 h.p. SINGER, V belt, H.T. magneto	£16 10
1907 3½ h.p. QUADRANT, spring forks	£17 10
3 h.p. ZEDEL, vertical, 26in. wheels	£13 0

SPECIAL BARGAINS.

3 h.p. HUMBER, spray, free engine	£10 10
3 h.p. BRADBURY, long and low	£10 0
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. STEVENS, H.B. control, band brake	£13 10
3 h.p. CLYDE, magneto ignition	£14 10
2¾ h.p. KERRY, light and low, spray	£9 10
3½ h.p. REX 22 frame, re-enamelled	£7 10
3 h.p. BEESTON-HUMBER spray, chain drive	£9 10
3½ h.p. WERNER, used with passenger	£13 10
2¾ h.p. Light ARIEL, low build	£8 15
2¾ h.p. LLOYDS, vertical, spray	£6 0
2 h.p. F.N. SAROLEA, untested	£4 5
5 h.p. Twin REX with Mills-Fulford Forecar	£11 10

Monster list on application. Cash offers considered.

Five 5½ h.p. Twin Rexes, spring forks, long bars, low frames, aluminium finish, blue lines, 26in. wheels. £16 10s.

Grand Sidecar machines, EXCHANGES or EASY PAYMENTS

EASY PAYMENTS.

5/- weekly and reasonable deposit secures any of these machines. All tested and ready for the road:

2¾ h.p. Bradbury	£10 0	2¾ h.p. Kerry	£9 10
3 h.p. Clyde	£15 0	2¼ h.p. Ariel	£9 13
3 h.p. Ariel	£10 0	2¾ h.p. Werner	£8 10
3 h.p. Humber	£10 0	3½ h.p. Werner	£13 10
3½ h.p. Rex	£10 10	2¾ h.p. M.M.C.	£9 10
2½ h.p. Lloyd's	£7 10	2 h.p. Humber	£8 10
3½ h.p. Rover	£14 0	3 h.p. Bradbury	£10 10

CARS AND TRICARS.

Any reasonable exchange considered. Room wanted.

8-10 h.p. two-cylinder FORD car	£32 10
10-12 h.p. two-cylinder BRUSH car	£39 10
4½ h.p. BRADBURY w.c. tricar	£35 0
5½ h.p. w.c. two-speed REXETTE	£24 10
5½ h.p. Twin Rex, MILLFORD Forecar	£14 10

MISCELLANEOUS.

New B.&B. carburetter, H.B. control	£1 5 0
New AMAC " "	£0 19 6
New large size LYCETT'S motor saddle	£0 9 6
MABON clutch, fits Triumph nearly new	£1 15 0
New spring forks, fit 1909 or 1910 Rex	£1 19 6
MILLFORD sidecar, 26 x 2¼	£3 10 0
MONTGOMERY, seats two, nearly new	£4 5 0
New D E LUXE sidecar, special fittings	£5 17 6

MOTOR BICYCLES FOR SALE.

3½h.p. N.S.U., magneto, M.O.V., Mabon clutch, Druid forks, P. and H. lamp, and spares, splendid condition; £25.—518, Caledonian Rd., Holloway, N.

IF You Want Bargains in second-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet St., London, E.C., just off Ludgate Circus.

2¾h.p. Kerry, in good order; must sell; £10.—Whittle 5-6h.p. twin Antoine, £16 10s.; 3h.p. Pebok, £12. —Godfree's, 124, Romford Rd., Stratford, E. 'Phone, Stratford 243.

1909. Rex, 5-6h.p., twin, condition as new, not ridden 200 miles, B. and B. carburetter, 2½ Dunlops, many refinements; £31.—E.F., 1, Fieldsway House, Highbury Crescent, N.

3¾h.p. N.S.U., 1908, magneto, spring forks, 1in. Shamrock belt, 26 by 2½ tyres, two-speed gear, and free engine, perfect condition, suitable for sidecar; £26 10s.; approval.—Eagles and Co., N.S.U. Agency, Acton.

NYE'S!—Part exchange business a speciality. Agents for all new machines. Many testimonials. Exact delivery stated.—69, Leather Lane, Holborn, London. 'Phone, 6299 Holborn.

NYE'S!—3½h.p. N.S.U., magneto, Continentals, in thorough working order; £13 5s.

NYE'S!—1909 5h.p. V.S., as new, two speeds, Cowey speedometer, etc.; offers.

NYE'S!—1909 3½h.p. Minerva, Continentals, spring forks, as new and guaranteed; £26.

NYE'S!—2¾h.p. Kerry, 26in. wheels, non-skid tyre, long handle-bars, guaranteed; offers over £6.

NYE'S!—2¾h.p. 1908 Magneto Rex, condition as new and guaranteed; £15.

NYE'S!—3½h.p. Rex, spring forks, good tyres; to clear, offers over £8.

NYE'S!—Special notice. We fit free of charge mirror lens lamp, horn, etc., to any machine purchased from us.—69, Leather Lane, Holborn, London.

ZENITH Gradua, 1909 J.A.P. engine, the machine used by Mr. Barnes in all the hill-climbing competitions, also winner at Brooklands in Oxford-Cambridge races; clearance price £36.—Below

TRIUMPH-Gradua, 1908, in excellent condition; £33; good tyres and belt.—Below.

SHOP-SOILED Zenettes, Zenith Bicar, all new, at clearance prices; great reductions.—Zenith Motors, Ltd., Weybridge.

3¼h.p. N.S.U., low built, magneto ignition, spring forks, excellent condition; £18 10s.; approval.—Eagles and Co., High St., Acton.

£9—3h.p. Reynard, low, fast, long handle-bars and pillar, handle-bar control, new engine, good condition; must dispose of.—Blundell, The Barons, Twickenham.

2¼h.p. Minerva, Chater-Lea, low, new carburetter, belt and pulley, rebuilt last year, perfect order; £7 10s., or exchange tricar frame.—Menear, 75, Oakfield Rd., Penge.

3h.p. Quadrant, low, fast, hill-climber, powerfull side-carter, long bars, ¾ belt, splendid condition throughout, accessories; trial; bargain, £9 10s., offers.—17, Ford Sq., E.

1907 5½h.p. Twin-cyl. Rex, twin rear tyres, free engine, very fast, in perfect condition; any trial and examination; a bargain. £25.—Weatherley's, 295, High St., Lewisham. 'Phone, 551 Deptford.

F.N., 2¾h.p., magneto, h.b. control, spring forks, £15; F.N. (electric ignition), 2¾h.p., £10. 2¾h.p. chain Humber, free engine; 4½-5h.p. twin Antoine, with sidecar, £20; many others; write for list.—Pullman Bros., London Rd., Norbury.

3½h.p. Lagonda, perfect condition, everything complete; £9; reason for selling, no accommodation; seen any evening.—Barden, 38, Ambler Rd., Finsbury Park, N.

BARGAIN.—4h.p. twin Werner, complete, spares and tools; owner going abroad; overhauled October; splendid working order; £15.—41, North End Rd., West Kensington.

3½h.p. Minerva, spring forks, Duco non-skid, battery ignition, adjustable pulley, 3in. Dermatine, ready for road; £10 10s., or offers.—Westlake, Western Hospital, Seagrave Rd., Fulham.

3h.p. Fafnir, splendid condition throughout, excellent hill-climber, h.b. control; have bought twin and sidecar; £11 10s., or near offer.—Ben-Hur, 69, Greenside Rd., West Croydon.

3½h.p. Minerva, spring forks, new condition, including tyres, two accumulators, Shamrock belt, B. and B. handle-bar control, searchlight, spares, Clair silencer; £20.—21, High St., Bognor.

1909 Triumph, with spring wheel sidecar, complete, accessories, pair searchlights, handle-bar mirror, watch, hooter, natty combination; £40.—G., 53, Barmouth Rd., Wandsworth Common, S.W.

MOTOR Cycle for sale, Centaur, 2¾h.p., good for sidecar, nearly new tyres, all in very good running order; cost £55, will sacrifice for 14 guineas, or near offer.—Parr, dairy, Worple Rd., Wimbledon.

4½h.p. Minerva, 1908, Palmer cords, B. and B., winner Jarrott and M.C.C. challenge cups, perfect condition, £26; G. and A. carburetter, new, 7s. 6d.; R.O.M. synchronised contact, 15s.—66, London Rd., Twickenham

MOTOR BICYCLES FOR SALE.

HAMPSTEAD for great bargains, new and second-hand, gradual payments taken on any machine, exchanges.—Only address, 5, Heath St., Hampstead. Tel.: 2678 P.O.

HAMPSTEAD.—2¼h.p. Douglas, magneto, and spring forks, splendid condition; £28, with accessories; 3½h.p. N.S.U., £13.

HAMPSTEAD (£25).—F.N., 4-cyl., 4½h.p., splendid condition, with all accessories, late model.

HAMPSTEAD.—Sole London and district agents for Lincoln Elks, all models in stock; special price trade.

HAMPSTEAD.—Are now showing all the leading 1910 machines; exchanges entertained; delivery from stock, no waiting.

HAMPSTEAD.—Triumphs, 1910, in stock; Rexes, Douglas, Moto-Reves, F.N.'s, no waiting; gradual payments taken.

HAMPSTEAD.—Triumph, 1907, new tyres, splendid condition; £27; Triumph, 1909, new condition, £33; Douglas, 1909, £27.

HAMPSTEAD.—5-6h.p. F.N., 1909, splendid condition, all accessories, £30; 3½h.p. Fafnir, Chater-Lea fittings, £13.

HAMPSTEAD.—3½h.p. 1909 magneto Minerva, £28; 1909 Lincoln Elk, magneto, new condition, £20, bargain.

HAMPSTEAD.—Minerva, 2h.p., good order, £4 15s.; Humber, 2h.p., £4 10s.; Minerva, 3½h.p., £10.—Tel.: 2678. P.O.

THE Eastern Garage Company, 418, Romford Rd., Forest Gate, are agents for all leading makes of motor cycles. 1910 Triumphs, Rex, P. and M., Douglas, Kerry-Abingdons in stock. Second-hand machines taken in part payment. The following selection are excellent value.

1909 Rex Tourist, 3½h.p., new, J.A.P. lubricator and latest improvements; £35.—Below.

1909 Tourist Rexes, 3½h.p., with all accessories; £29 each.—Below.

1906 Rex, 3½h.p., spring forks, in guaranteed condition; £12.—Below.

1909 Triumphs, with first-class accessories; £35 each.—Below.

1908 Triumph, Brooks padded saddle, guaranteed perfect; £29.—Below.

1907 Triumph, tyres and belt as new, perfect order; £22.—Below.

1909 J.A.P., 4h.p., M.O.V., J.A.P. adjustable pulley, Bosch magneto, Chater frame and spring forks, Palmer tyres, H.B. control, not done 300 miles, including accessories; £32.—Below.

1908 J.A.P., 4h.p., Bosch magneto, Chater frame, Druid spring forks, footboards, studded tyres, Autoclipse lamp, etc.; £26.—Below.

1909 F.N., 4-cyl., F.N. footrests, H.B. control, R.O.M. combination tyre, with nearly new sidecar; £35.—Below.

1909 Peugeot, 5h.p., Chater, adjustable pulley, R.O.M. and Palmer cord covers, Davison's gauges and fillers, F.R.S. lamp; £20.—Below.

1906 Minerva, 2½h.p., Bowden h.b. control, in perfect order, guaranteed; £12.—Below.

1907 De Dion, 2¼h.p., spring forks, rubber studded tyre, light low machine, splendid condition, spares; £12.—Below.

IN Addition to the above the Eastern Garage Co. have a number of machines at prices ranging from £7. Please favour us with a visit at 418, Romford Rd., Forest Gate, or telephone, Stratford, 10. Telegrams, Egaraco, London.

4h.p. Roc, two speeds, handle starting, magneto ignition, tyres in perfect order, handle-bar control, new rim, new non-skid on back, £28; one 10 ampere ammeter, in round brass case, 10s.—A. M. Barton, Rayne Rd., Braintree.

3½h.p. Oracle, late 1908, long, low, Chater-Lea, dome topped piston, B. and B. carburetter, non-skids, accessories, reliable, and powerful, splendid winter machine; £15 15s., or nearest offer; owner going abroad.—Hatch, Buckhurst Hill.

1909 T.T. Triumph, new July, R.O.M. combination back tyre, new November, Cowey speedometer, standard or T.T. handle-bars, new lamp, spares, etc.; £38; owner going abroad.—Nugent Peacock, 2, Westbourne Crescent, London, W.

TRIUMPH, 1907, best condition, h.b. control, just overhauled by Triumph Co., new parts fitted, magneto and free-wheel covers, spare belt, lamp, generator, good horn, R.O.M. tyre and others, unpunctured; £24, or near offer.—Goddard, 67, Palace Rd., Streatham Hill, S.W.

CLEARANCE.—2¾h.p. Kerry, £8 10s.; 6h.p. twin Antoine, £17 10s.; 2¾h.p. Brown, £8 10s.; 2¼h.p. Quadrant, £4 10s.; 2¼h.p. J.A.P., £8 10s.; 2¼h.p. Phœnix, magneto, two speeds, £14 10s.; exchanges; please call, or write; trials.—128, High Rd., Tottenham. 'Phone 1982, Tottenham.

INSPECT our magnificent stock of second-hand shop-soiled and new motor cycles, the finest show ever witnessed; prices to suit all, whether tariff reformers or free traders; all are welcome to inspect our splendid bargains, from £8 10s.; buy now, from Wanchape's, 9, Shoe Lane, Fleet St., London, E.C.

50/- and a decent push bike secures either of these:

2¾ h.p. HUMBER | 2¼ h.p. CLARENDON
2¾ h.p. STEVENS | 2 h.p. REX

All guaranteed in running order and tested.

CASH, CREDIT, or EXCHANGE.

1909 3½ h.p. REX Speed King	£32 10
1909 5 h.p. Twin REX, fine machine	£32 10
1910 6 h.p. CLYNO, brand new, offers wanted.	
6 h.p. N.S.U., magneto ignition, very low	£23 0
1910 3½ h.p. REX, new, offers wanted	
1909 3½ h.p. REX, R.O.M. tyres	£30 0
1909 3½ h.p. HUMBER, two-speed model	£32 10
1910 3¾ h.p. Twin PREMIER	50 Gns.
1909 6 h.p. Twin REX, quite new	£36 0
6 h.p. Twin REX, Bosch magneto, very smart	£20 0
1908 N.S.U. Lightweight, magneto	£17 0
3½ h.p. 1908 TRIUMPH, magneto ignition	£29 0
One ditto, fitted Roc two-speed gear	£35 0
1908 6 h.p. ROC, two-speed and clutch	£30 0
5 h.p. Twin N.S.U., magneto, very low	£21 0
1908 REX DE LUXE, clutch, etc.	£28 0
1908 Twin REX, magneto, very low	£25 0
3½ VINDEC, magneto, Nala two speeds	£19 0
3¾ h.p. GRITZNER, 1908, magneto ignition	£17 0
1908 Magneto REX, fine condition	£18 0
5½ h.p. Twin REX, as new	£16 10
3½ h.p. REX, M.O.V., spray	£10 10
3½ h.p. 1907 REX, lovely goer	£15 15
3¼ h.p. low REX, H.B. control, M.O.V.	£11 0
6 h.p. Twin REX, and sidecar	£20 0
5½ h.p. REXETTE, two speeds, fine machine	£24 0
6 h.p. N.S.U. and Sidecar, magneto	£27 0

5 only. Brand new 1909
3½ h.p. O.T.A.V. VOITURETTES, complete with hood, lamps, tools, and spares, £60 each. Magneto ignition, £5 extra.

FARRAR'S HALIFAX SIDECARS.

£4 17s. 6d. complete with best tyres. Guaranteed 12 months. An ideal winter attachment, quite rigid. Good, stylish, and comfortable. No side-slip. Beautifully sprung on double C spring. Approval anywhere. Send for descriptive circular. Don't buy until you have seen ours.
IMPORTANT.—For a few days, we will accept your old sidecar or trailer in part payment.

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Clarendon £9 | 3½ h.p. Humber £9
3¼ h.p. Rex £9 | 3½ h.p. Rex, M.O.V. £11
3¾ Centaur, M.O.V. £9 | 4 h.p. King £9

ACCESSORIES, Etc. Get my List. POUNDS SAVED.

	s.	d.
2¾ h.p. Minerva engine	25	0
2½ h.p. Monarch engine	35	0
28 x 2 or 2¼ Dunlop Wired Covers	11	6
Lycett's B Tool Bags, shop soiled, each	4	6
Smaller Motor Cycle Bags, shop soiled, each	2	6
"Hella" Gas Lamps with separate generator	14	6
"Premier" Gas Lamps with separate generator	12	6
"Camel" V Belting, ⅞in. or 1in., per foot	1	3
Latest pattern Plated Handle-bars, drop ends	5	6
Enamelled Mudguards, with stays, etc., pair	2	11
Three-note "Fanfare" Horns, very penetrating	7	6
Clincher Rubber-studded Covers, 26 x 2¼in., each, 29/-. Clincher Tubes, all sizes, with valves, 4/11 each. New Loop Frames for vertical engine, 30/- each. 1909 Amac Carburetters, h.b. control, 19/6 each. 1910 Brown & Barlow, ditto, 28/- each. Large Motor Cycle Saddles, to clear, 5/- each. Forecar Attachment, 26in. wheels, £4. Montgomery Sidecar, £3 15s. Premier High-tension Magneto, new, 59/6. Bosch ditto, ditto, twin-cylinder, new, £3 10s. Motor Cycle Frame, complete with wheels, tyres, and tank, very smart, £2 9s.		

High-class Machines Wanted. Cash Waiting.

E. FARRAR,
Albion Works, Square Rd., HALIFAX.
Telephone 919.

MOTOR BICYCLES FOR SAL

DOUGLAS, May, 1909, run 2,000 miles, P cords, Michelin butt-eaders, B105 padded s Lucas Mangin lens headlight, Miller back, mudg extra strong back wheel, new Watawata, excellent dition, including spare tube, rubber and leather all tools: £30; approval; deposit.—J. A. Patt Woodville, Farnham, Surrey.

STEVENS, 4½h.p., Chater-Lea, Phelon and Moor speed gear, Longuemare, Ruthardt magneto accumulator ignition, 26 by 2½ tyres, large comfor footboards, and detachable mud screens, silent exh handle-bar controls, Chater coach-built sidecar, all cost over £70, and used only one month; bought first reasonable offer secures.—Seen, 19a, Carlyle King's Rd., Chelsea.

TWO Bargains.—2¾h.p. Minerva, Dunlop tyres wheels, E.N. carburetter, almost new belt, B ton's anti-vibration saddle, mechanical valves, fast, reliable, carrier, horn, bag, spare belt, lamp, new proof gauntlets, sacrifice £6 15s.; 2¾h.p. Peugeot, wheels, new Michelin cover, long handle-bars, low pos Brooks saddle, Longuemare carburetter, large new mulator, fast, and powerful, horn, carrier-stand, lamp, two spare new Continental tubes; sacrifice 10s.—12, Market Sq., Horsham, Sussex.

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

TRIUMPH and Motosacoche, 1910 models in s cash, exchange, deferred payments.—Dan Weymouth.

TRIUMPH, 1909, free engine, model new July, chers, tyres and engine perfect; £37, or of Dan Guy, Weymouth.

TWIN Vindec, Truffault spring forks, magneto speed gear, free engine, 21 by 2 tyres, stan carrier, tyres, tubes, and engine perfect, with rigid ford sidecar, 2½ tyre; £37, or offer.—Dan Guy, mouth.

REX, 3½h.p., long handle-bars, 26in. wheels, low tion, spring forks, handle-bar control, new F cover rear wheel, Continental front, thorough goo dition, 20 amp. Fuller accumulator, thorough goo dition; any trial here; £12, no offers.—Salway, 81 Beauchamp, Ilminster.

SECTION X.

Scotland.

EXCEPTIONAL Offer.—1910 standard Triumph livery in a fortnight; spare exhaust valve; cheque £48 10s.; carriage paid.—Lunan, 13, Guildry St., Elgin.

SCOTLAND'S Largest Motor Cycle Firm.—Rex, Indian, Moto-Reve, Phelon and Moore, Z Douglas, Roc, Griffon; we stock all these, and can any other make.—Alexander's Motor Exchange, L Rd., Edinburgh.

SECTION XI.

Ireland and Isle of Man.

3½h.p. Beeston Humber Motor Cycle, only wants up, all perfect; what offers?—A. W. P Church Place, Lurgan, Ireland.

F.N., 4-cyl., 4½h.p., 1908, perfect order, new m (never nsed), new Dunlop studded tyre, spares nickel plating as new; £25, or nearest offer.—A. W low, Church Place, Lurgan, Ireland.

TRICARS FOR SALE.

9h.p. Singer, Palmer cords, 3½ back; £60.—(Ingleby, Radlett, Herts.

4½h.p. Riley Coachbuilt Tricar, free engine, cooled; offers; by appointment.—2, Harve Hornsey.

RILEY, 5-6h.p., light coach-built, just thoroughl hauled makers, Coventry, where seen, tyres Lomax, 98, Greenfield Rd., Harborne.

CHATER-LEA Upholstered Light Tricar, 4½h.p vens, 26 by 2½ wheels, lamps, Whittle belt, va price £15 15s.—Marsh, Lumley Rd., Horley.

QUADRANT (Carette), 6h.p., two engines, two wheel steering, coach-built, good running £30.—D. Park, c/o Baines, Aberdeen Rd., Clifton, B

4h.p. Antoine Tricar, open frame, chain drive, steering, two accumulators, tyres new, excelle ning order; sacrifice £18.—147, High Rd., Wood

5h.p. Chater-Lea Tricar, water-cooled, three speed box, foot clutch, nearly new; genuine ba seen any day after 2; £25, or near offer.—254, F Rd., East Ham.

9h.p. Riley Tricar de Luxe, latest type, in perfe dition, lamps, and all accessories; 50 gu guaranteed perfect.—H., 6, Queen Anne Mews, Ca Sq., W.

ZENITH Tricar, 6h.p. J.A.P. engine, three-speed chain drive, coach-built, climb anything, ne shop-soiled; 40 per cent. reduction.—Zenith Motors Weybridge.

QUADRANT, twin engine, 5h.p., bucket seat, Wolf, 4½h.p., water-cooled, coach-built, £18; 6½h.p., water-cooled, coach-built, wheel steering, etc. all two-speed.—Pullman Bros., London Rd., Norbu

9h.p. Singer Coach-built Tricar, water-cooled, speeds forward and reverse, wheel steering, car tyres, condition as new; seen by appointment —W.P.S., 15, Alpha Rd., New Cross, London.

ollier's Motories,

Park Cross Street, LEEDS.

(Facing Town Hall.)

3½ h.p. two-speed REX, new. What offers.	
Twin REX DE LUXE, SOILED...	£49 10
1909 TRIUMPH	£43 10
HUMBER, a clipper	£35 0
N.S.U., two-speed, a BEAUTY....	£27 0
ROC, 1907, magneto, H.B. control ..	£23 0
O-REVE, Druid forks, magneto, V belt	£24 0
SAROCHE, 1908	£22 10
MPH, 1906, vertical, like new	£20 0
ER, 3 h.p., late model, BELT DRIVE	£18 0
DINE, 4 h.p., magneto	£18 0
QUADRANT, a gem	£17 10
CLEMENT, spring forks, Palmers ..	£9 19
3½, John-o'-Groat's model, 22in. frame	£9 10
HUMBER, spray, clutch	£7 10
THOMAS, a real good'un	£7 10
RY, long bars, low seat	£9 10
DRANT, 2 h.p., low, 26in. wheels	£8 10
EIGH, 2 h.p., vertical	£7 5
MINERVA, splendid value	£5 18

MIRROR LENS

19/6 GET IT!

Extra Large Generator.

19/6

HEADLIGHT (PLATED).

TRIUMPH, brand new	£45 0
Twin REX DE LUXE, NEW	£51 0
3½ REX Speed King, greased lightning	£27 10
RACER, 24in. wheel, 65 M.P.H.	£30 0
Twin REX, spring forks	£16 16
h.p. MINERVA, 1908, suit sidecar....	£27 10
4-cyl. 4½ h.p., purs like a kitten	£26 0

SUNDRIES.

TE HORNS, the latest	8/6
CONVERSION SET	£8 0
U. FREE ENGINE PULLEY	£1 10
ETT'S LARGE SADDLE, new	12/-

HANDLE-BAR CONTROL CARBURETTERS.

Models B. & B., complete, new..... 25/-
Models Amac " 19/6
for sound carburetters in exchange, for 1910 els. 10% discount for cash without exchange.

ST TYRES. FREE.

LL NEW, PERFECT, AND BEST MAKES.

2½ 13/6; 26 × 2½ 18/6; other sizes 13/6 each.
VIRED, 28 × 2, 13/6; 28 × 2½, 14/6.
UBBER-STUDDED CLINCHERS, 29/-
SPECIAL LINE, 26 × 2¼ TUBES, 4/6.

TRICARS FOR SALE.

6 h.p. Twin Air-cooled Tricar, open frame, Chater-Lea, inclined wheel steering (like racing car), three speeds, free engine, bucket seats, racy and very smart; absolutely must sell; take £16 (worth £25).—17, Kenmure Rd., Mare St., Hackney.

10 h.p. Lagonda Tricar, three times successful London-Edinburgh, in splendid condition, engine rebushed 10 months ago, also new gears and chains, tyres perfect, many spares; cost £130, price £32, worth double; to be seen at Finchley Rd. Garage, adjoining L.N.W. Station.—Write, E. W. Brewerton, 84, Wimpole St., W.

5 h.p. Twin-cyl. Light Tricar (Rex Triette), Bosch magneto, two-speed gear, in rear hub, Roc clutch, handle starting, cane forecarriage, footboards, special 1¼in. Watawata belt, adjustable pulley, Brooks saddle seat on Rex spring seat-pillar, complete with lamp, horn, and spares, registered; can be seen in Midlands; price £40.—No. 3,883, *The Motor Cycle* Offices, Coventry.

SIDECARS AND FORECARS.

NYE'S!—Chater-Lea sidecars are good! Try one. —69, Leather Lane, Holborn.

LIGHT Forecar, 26 wheels, perfect condition, wicker basket; 55s.—Kenworthy, Walpole, Wisbech.

SIDECARS, £4 17s.; baskets, springs, fittings; trade supplied.—Middleton and Co., Watson St., Newington Green, London, N.

CHATER-LEA Upholstered Sidecar, good condition; £4, or exchange engine, 2¾h.p.; any evening.—Hole, Lavender Rd., Wallington.

MONTGOMERY Sidecar, flexible joint, nearly new, wicker body, not upholstered; offers.—Stimpson, Pickersleigh Rd., Malvern.

MONTGOMERY Sidecar, almost new, 26 by 2½ tyre, £5; also nearly new speedometer, Cowey, £3 10s. —Duxbury, 40, Blackburn Rd., Darwen.

OUR Sidecars Talk. — New, with Michelin tyre (not new clearance), £5 5s.; perfectly satisfactory; one second-hand, £3.—128, High Rd., Tottenham. 1982, Tottenham.

LATEST 12 guinea sidecar, brand new, and built throughout with genuine Chater-Lea fittings; £6 6s.; wanted, Sunbeam cycle.—H. Bert, 9, Gaskell St., Clapham, London, S.W.

BRAND New 1909 Montgomery, flexible, wicker chair, upholstered green, non-skid, apron, 26in. wheel, never used; cost £10 10s.; lowest cash £6 15s.—Wallis, grocer, Hills Rd., Cambridge.

J. DAVIS, Automobile Engineer, Barnsbury Grove, N., begs to inform readers that he is the inventor and sole builder of the protected double-seated sidecar, illustrated recently in *The Motor Cycle*. This sidecar, with tiller steering, is the last word in comfortable motor cycling. Particulars and prices on application.

DID You Visit the recent Stanley Show?—If you did, you have seen with admiration and heard the chorus of unanimous approval of our new patent Homegaraged sidecar, which, together with the cycle, stand, and can be wheeled about without detaching in the space of 23-26in. Your own old sidecar converted into a Homegaraged one for £1 17s. 6d. Send us yours; no crate required.—Bramson and Co., 5, Farleigh Rd., Stoke Newington, N.

QUADCARS.

FOR Sale, Phœnix quad, very good condition; nearest offer £30 has it.—Webb, 37, Gt. St. Helens, Bishopsgate, E.C.

8 h.p. Phœnix Quadcar, twin water-cooled Fafnir, two speeds and reverse, splendid condition; £37 10s.—128, High Rd., Tottenham.

ARIEL Quad, two speeds, Amac carburetter, h.b. control, car tyres, splendid condition, reliable; £20.—77, Upper Clapton Rd., N.E.

PHŒNIX Quad, 2 cyls., seat two, magneto ignition, in new condition, wheel steering, painted French grey, detachable front seat, with bonnet to replace; client leaving the country; cost £127, to clear, £45.—Apply, Turvey and Co., Garage, Sunderland.

CARS FOR SALE.

9-11h.p. Clement Car, 4-seater, £70; another at £48; Swift single-cyl. 2-seater, £45.—Carr's Motors, Bury.

7-9h.p. Star, three speeds and reverse, 2 or 4-seater, 810 by 90 wheels, perfect; trial; £47 10s.—Below.

4½h.p. De Dion Phaeton, two speeds, perfect condition; £18 10s., or exchange.—128, High Rd., Tottenham.

8-10h.p. Deschamps, 2-seater, racing type body, raked steering; £35, or exchange.—16, Triangle, Bishops Rd., Fulham.

DARRACQ, 9h.p., single-cyl., three speeds and reverse, 4-seater, solid tyres new; £35.—T. Church, Worsboro' Dale, Barnsley.

9 h.p. Darracq, detachable tonneau, hood, three speeds, reverse, cardan; £45; part exchange.—20, Potternewton Lane, Leeds.

SMALL 2-seater, 5h.p., two speeds, engine under bonnet, splendid throughout, tyres included; £20.—30, London Rd., Blackburn.

O.T.A.V., smart 2-seater, complete with hood and lamps; £35; photo; good motor cycle part payment; bargain.—28, Woodbridge Rd., Ipswich.

WHEN

"ALL'S WELL"

with the engine all's well with the motor bike. If you would have "all well" with the engine give

CHEMICO
MOTOR BIKE OIL

a fair practical test, you'll want no other.

TOM PECK who used it on his End-to-end ride, wrote of it—

"I found it everything one could wish. I had no trouble from over-heating as my engine was running as well and as sweetly when I reached John-o'-Groat's as when I left Land's End."

Can you say as much for the oil you are now using? Ask for Grade A, specially prepared for general winter use.

Quart Tins, 1/8 each,
of all motor men.

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Chemico Works,
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LONDON: 43, Gt. Eastern Street.
MANCHESTER: 235, Deansgate.
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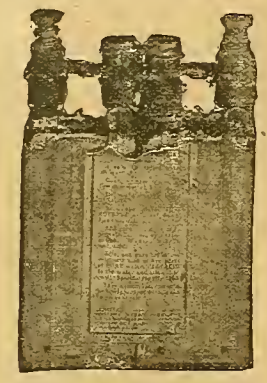
EPR

REPAIRS

TO ALL MAKES OF

ACCUMULATORS



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WE ARE SPECIALISTS IN REPAIR WORK, AND SPECIALLY CATER FOR THIS CLASS OF TRADE. NO BATTERY NEED BE THROWN AWAY AS USELESS OR BEYOND REPAIR.

JUST SEND IT ALONG TO US. WE WILL QUOTE YOU BY RETURN, OR MAKE YOU AN ALLOWANCE IN EXCHANGE FOR A NEW CELL.

CELL WHEN REPAIRED.

THE ABOVE ARE FROM ACTUAL PHOTOS, BEFORE AND AFTER REPAIRS, OF AN ACCUMULATOR SENT UP BY A CLIENT, AND ARE NOT SPECIALLY FAKED UP FOR ADVERTISING.

Our new List, containing 40 pages, sent post free on request.

Dept. A.R., **RICHFORD & CO.** (Accumulator Specialists),
153, Fleet Street,
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EPR

CARS FOR SALE.

PALMER.—16-20h.p. Mutel Landaulet, open or closed body, side entrance, grand car; £100.

PALMER.—40-50h.p. De Dietrich, side entrance car, latest model, fitted hood, screen; £325.

PALMER.—16-20h.p. De Dietrich, 5-seater, magneto, just re-painted, and ready to go anywhere; £75.

PALMER.—24h.p. F.I.A.T., Burlington body, hood, screen, side curtains, full equipment; £175.

PALMER.—16-20h.p. Corre tonneau, hood, screen, head lamp, full equipment, spare tyre; £75.

PALMER.—12-16h.p. Aries, tonneau, genuine Aster engine, fast, reliable, and light car; £75.

PALMER.—15h.p. Darracq, 5-seater, hood, screen, push pedals, tyres like new, perfect; £95.

PALMER.—15-20h.p. Panhard Chassis, with lorry body, 4-cyl., good running order; £55.

PALMER.—12-14h.p. Humber, tonneau, Moseley perfect tyres, very smart car; £65.

PALMER.—16-22h.p. Gladiator, side entrance, long chassis, disc clutch, roomy body; £125.

PALMER.—9h.p. Jackson, 2-seater, bucket body, general condition like new; £85.

PALMER.—12h.p. M.M.C., tonneau, 2-cyl., good running order; clearance price, £35.

PALMER.—9h.p. taxicab, latest style, landaulet body, seating four inside, very smart; £150.

PALMER.—8h.p. Buchet chassis, late type, long stroke, fast running engine; £75.

PALMER.—16-24h.p. De Dietrich Chassis, late type, M.O.V., pressed steel frame; bargain, £85.

PALMER.—In stock at Tooting, one monoplane, 30ft. span, ready to receive engine; £75.

PALMER.—All above seen at L. N. Palmer's, 9a, Trevelyan Rd., Tooting. Garage one minute Merton Rd. tram terminus, Tooting. 'Phone, 208, Streatham. Photos, details. Easy terms. Exchanges.

ECLIPSE.—18h.p. Siddeley, side entrance, hood, screen, dual iguition; a gift, £115.

ECLIPSE.—14-16h.p. Darracq, the 1910 speciality; immediate delivery; 225 guineas; old car part payment.

ECLIPSE.—14h.p. Star, 4-cyl., M.O.V., side entrance, excellent order; £85.

ECLIPSE.—14h.p. Forman, 4-cyl., M.O.V., side entrance, new condition; bargain, £105.

ECLIPSE.—14h.p. Pritchett and Gold, 4-cyl., steel frame, hood, excellent order; £72 10s.

ECLIPSE.—12h.p. J.P., 2-cyl., long chassis, side entrance, hood, perfect order; £80.

ECLIPSE.—10-12h.p. Gnome landaulet, four seats, splendid order; £87 10s.

ECLIPSE.—6h.p. Siddeley, 2-seater, steel frame, reliable and good; £42.

ECLIPSE.—6h.p. Swift-De Dion, 2-seater, hood, perfect order; £38.

ECLIPSE.—10-12h.p. Star box delivery van, very good order; £60.

ECLIPSE.—8h.p. De Dion, genuine, two speeds, tonneau, in pink of condition; £72 10s.

ECLIPSE.—6½h.p. Darracq, 2-seater, reliable little car; £22.

ECLIPSE.—6h.p. Quadrant Carette, coach-built, two speeds; £20.

ECLIPSE.—8-10h.p. Rexette, 3-seater, very fast, excellent condition; £29.

ECLIPSE.—3½h.p. Raleighette tricar, two speeds, water-cooled, splendid order; £20.

ECLIPSE.—5½h.p. Rex Triette, 2-cyl., very fine machine; £20.—Eclipse Engineering and Motor Co., 255, Earlsfield Rd., Wandsworth. 'Phone, 1135 Putney.

9h.p. Darracq Car, three speeds and reverse, 2-seater, wants two new front covers; must sell; £29.—Ayden, 17, Blackstock Rd., Finshury Park, N.

16h.p., 2-cyl., four speeds and reverse, 4-seater, tyres in good order; must sell; offers invited, or exchange 2-seater and cash.—Paterson, Croxley Green.

FOR Sale, 8-10h.p. Wolseley motor car, new June, 1906, two owners only, Siddeley radiator, engine and coachwork excellent, tyres 1909; £65.—B., 4, Parkhill Rd., Hampstead, N.W.

12h.p. 2-cyl. M.M.C., side entrance, canopy top, glass screen, tyres good, excellent car for hire; £36, worth double, or exchange.—Atherton, 7, Lansdowne Place, Upper Norwood, S.E.

10-12h.p. Pick 4-seated Car, 2-cyl. engine, been standing in coach-house over a year; must sell; £20, or exchange motor cycle.—Apply in first place, Turvey and Co., Garage, Sunderland.

10-12h.p. M.M.C., Daimler 2-cyl engine, roomy tonneau body, make a splendid van up to one ton; must clear; £35, or exchange Triumph motor cycle.—Turvey and Co., Motor wks., Sunderland.

CAME

Franco-British Exhibition 1908.
3 *Grand Prix.* 8 *Gold Medals.*

As a chain is only as strong as its weakest link, a belt is only as efficient as its least considered essential.

The essential links in motor belting construction—Maximum effective pulling surface; Elimination of stretch; Tensile strength; Flexibility; Centring of core; Prevention of twisting, end breaking, and surface cracking—when evenly considered and supported by suitable materials and experience, ensure a perfect whole.

Camel Belting, owing to its uniform wear, due to scientific construction, is offered and sold as being the nearest possible to the ideal.

Obtainable through all Agents.

⅝″	¾″	⅞″	1″	1¼″	per
1/1	1/4	1/9	2/4	3/6	foot

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Practical notes on Belting and Belt Driving. Fourth edition.

BELT

THE MOTOR CYCLE SUPPLEMENT

The Association of Motor Cycle Manufacturers and Traders.

A MEETING of representatives of the motor cycle trade, held by the Association of Motor Cycle Manufacturers and Traders, took place at the Holborn Restaurant on Wednesday afternoon. Mr. J. R. Nisbet was in the chair. In opening the meeting, the Chairman recounted the doings of the Association since its formation at the last Stanley Show, and mentioned that the Society of Motor Manufacturers and Traders and the Cycle and Motor Trades' Association had been invited to send delegates to point out the advantages offered by their bodies. It had been suggested that this Association should join forces with the C. and M.T.A. The meeting had not been called solely to deal with the show question, but other business was to consider whether a separate association should be definitely formed or the present Association should join forces with the C. and M.T.A. In the event of an alliance there would be formed a special motor cycle section, which would enjoy the same advantages as if a separate body were formed, and, in addition, it would have a separate title, offices, and secretary.

Mr. Bednell (secretary C. and M.T.A.) stated that about thirty manufacturers of cycles and motor cycles, including all the principal ones, and thirty makers of proprietary articles formed the membership. As regards a title, it had been already suggested that in the event of an agreement between the two bodies the name of the Association would be the Cycle and Motor Cycle Trades' Association. The idea that a combined show at Olympia would be held had every prospect of being revived.

Mr. Mann (the Service Co.) asked if agents would be allowed to join, to which Mr. Bednell replied that only manufacturers or manufacturers' representatives would be admitted at present.

Mr. Harry Smith (the Rover Co.) said if the manufacturers were unanimous it would be quite possible to hold a good show of motor cycles and pedal cycles at Olympia, which could be rented from the Society.

The proposal that the Association of Motor Cycle Manufacturers and Traders should join forces with the Cycle and Motor Trades' Association was then put to the meeting and carried *nem. con.* The meeting, which was well attended, concluded with the usual vote of thanks to the chairman.

British Motor Cycle Racing Club Fixtures.

EIGHT meetings have been arranged at Brooklands by the go-ahead B.M.C.R.C. for 1910 as follows: Wednesday, March 16th; Wednesday, April 13th; Wednesday, May 4th; Wednesday, June 22nd; Wednesday, July 20th; Wednesday, August 17th; Wednesday, September 21st; and Wednesday, October 19th.

The programmes have not, of course, yet been settled in detail, but riders of all degrees of experience will be catered for by the inclusion of the following:

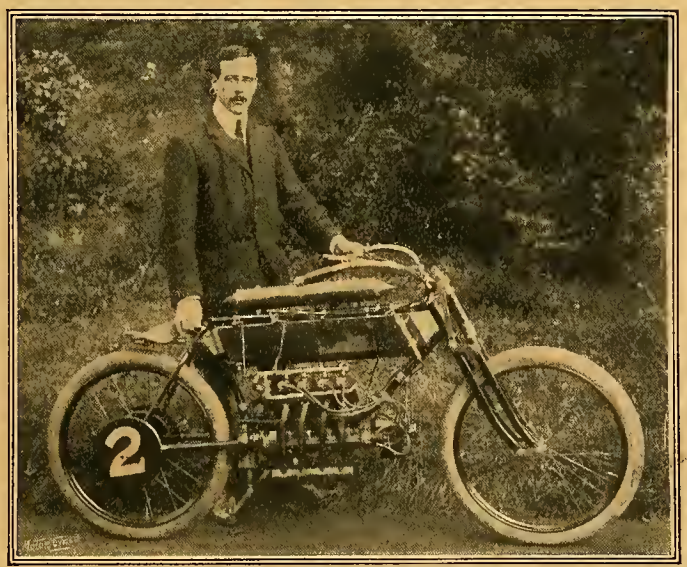
Three one-hour T.T. races before the Tourist Trophy Race is run in the Isle of Man.

A one and a two-hour race for all classes.

A five-lap racing speed judging contest.

The time trials for both miles and kilometres per hour rates, and with both flying and standing starts.

A five-mile time trial.



Mr. T. W. Loughborough, hon. sec. *pro tem.* of the B.M.C.R.C. Last year he was the successful exponent of a four-cylinder F.N. on Brooklands.

Team races.

Handicap races, based on previous performances made the same day.

The annual general meeting of the club will be held at 7.30 p.m. on Thursday, the 27th inst., at the offices of the Brooklands Automobile Racing Club, Carlton House, Regent Street, London, W.

Mr. T. W. Loughborough, Ashleigh House, Erith, Kent, has been appointed hon. secretary *pro tem.* of the B.M.C.R.C., in the absence of Mr. A. G. Reynolds, who has not yet quite recovered from his serious illness. Mr. Loughborough, it will be remembered, has been an exceedingly keen member of the B.M.C.R.C.

Lamp Lighting Times.

The times to light lamps this week are:

Mon., Jan. 24	... ...	5.31 p.m.
Wed., Jan. 26	... ...	5.35 p.m.
Fri., Jan. 28	... ...	5.39 p.m.
Mon., Jan. 31	... ...	5.44 p.m.

Racehorse v. Motor Cycle.

A novel race is on the *tapis*. Mr. Lionel E. Skertchly is to ride his 1909 T.T. Triumph against a 13 stone gentleman mounted on a racehorse. The match to be for £100 a side. Mr. Skertchly invites our readers' comments on the conditions. See Questions and Replies pages.

T.T. Race Entries.

Entries for the Tourist Trophy Race in the Isle of Man on May 26th are as follows: H. A. Collier (1 machine), W. H. Wells (2), Hendee Mfg. Co. (3), W. O. Bentley (1), Triumph Cycle Co. (3), C. B. Franklin (1), Noel E. Drury (1), H. Collier and Sons (2), Quadrant Motor Co. (1). Rex Motor Mfg. Co. (3), Scott Engineering Co. (1), W. H. Bashall (1), and J. T. Bashall (1).

The Projected Motor Cycle Show at Olympia.

The Society of Motor Manufacturers and Traders have decided not to hold a motor cycle section at the Aero Show in the spring, as the replies to the circular from motor cycle manufacturers gave but little support. It has also been resolved, subject to Olympia owners' permission, to sublet the hall to the Cycle and Motor Trades Association for extended time in November next, and to give the association the benefit of all arrangements possible for the holding of a cycle and motor cycle exhibition that month.

"The Motor Cycle" Buyers' Guide, 1910.

We have in course of preparation the 1910 "Buyers' Guide," which has been an annual feature of this journal since 1905. It will contain a complete list of British and foreign motor cycles at present on the market, together with a full specification of the different models and their list prices. The guide will be found invaluable to prospective buyers for reference purposes.

Manufacturers who have not received a form for filling in purposes should apply to us immediately.

Anything and Everything for a Motor Cycle.

The variety of articles offered in exchange for second-hand motor cycles is really amusing. Among the articles which were offered in the miscellaneous and exchange columns in our last two issues were a diamond pin and stud, joiner's tools, push cycles, motor cars, furniture, pianos and organs, diamond ring, oak bureau, phonographs, gramophone and records, typewriter, breech loading gun, flat of furniture, billiard table, and a piano player. The frequency of these advertisements shows a great keenness in the pastime and the large number of readers desiring to possess a motor bicycle

To Race at Brooklands.

Mr. A. Baker White, the well-known driver of high-powered racing cars, has returned to his first love—the motor cycle. Mr. Baker White last year possessed quite a stud of racing cars, and he was a regular competitor in Brooklands events. He is just as much at home driving a 60 h.p. Napier racer as a small touring car. Before he took to car driving he owned several single and twin-cylinder motor cycles, of varying horse-powers. He has just placed an order for a 3½ h.p. Trump-J.A.P. for racing at Brooklands, similar to the one illustrated in *The Motor Cycle* a fortnight ago.

American Records.

A list of "accepted motor cycle records" published in an American journal, and compiled by F. L. Valiant, shows that every amateur record has been created in America. The majority of the professional distance records are also credited to American riders. Cissac (2 records), H. Martin (1), and H. A. Collier (2), alone appearing on the list. All professional time records from one to twenty-four hours are "accepted" as belonging to British motor cyclists.

Next Saturday's Quarterly Trial.

The following entries have been received for the first quarterly trials of 1910:

Bicycle and Tricycle Class.

W. Cooper (3½ Bradbury).
E. Leighton (3½ Triumph).
Phelon and Moore (2¾ P. and M.).
W. W. Douglas (2¾ Douglas).
P. Phillips (2¾ Douglas).
G. Lee Evans (5 Indian).
W. O. Bentley (5 Indian).
J. S. Harwood (3½ P. and M.).
A. R. Abbott, jun. (8 Matchless).
H. G. Bell (2¼ F.N. tricycle).
F. A. Applebee (3½ Rex).
W. A. Lockwood (3½ P. and M.)
B. A. Hill (2¾ Douglas).
G. T. Gray (3½ N.S.U.).
Quadrant Motor Co. (3½ Quadrant).
A. T. Stanton (3½ Bradbury).
F. W. Applebee (5 Rex).
J. Gibson (5 Indian).
E. Kickham (2¾ Douglas).
Douglas Bros. (2¾ Douglas).
F. A. McNab (3½ Trump).
J. H. Slaughter (3½ Ariel).
Motosacoche, Ltd. (1⅞ Motosacoche).
S. A. M. Wittam (3½ Triumph).
Premier Cycle Co. (one 3½, and two 3¾ Premier).
Bayliss, Thomas, and Co. (two 3½ Excelsiors).
F. Thomas (6-7 G.O.K.).
A. L. Ommany (3½ Rex).

Passenger Class.

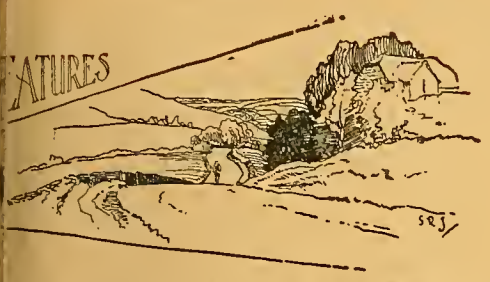
J. Tassel (8 Matchless and sidecar).
V.S. Cycle and Motor (7 V.S. and sidecar).
A. G. Fenn (5 A.C. tricar sociable).
Patent Gear and Motor Co. (3½ —— and sidecar).
J. Portwine (5 A.C. tricar sociable).
G. N. Higgs (5 A.C. tricar).

BENZOL AS A FUEL. THE V

Engine Features Criticised

Glenn H. Curtiss, the we aviator and motor cycle manu has designed a new pattern cylinder engine, the chief fea which is its off-set cylinder, o French term it, *desaxe* cranksh *Bicycling World* of America in ing the engine makes the followi ment: "Although this princ been applied to advantage in au engines, and also in certain cl steam engines, Curtiss is the fi neer to use it in a motor cycle But the writer is a long way b his facts. The credit belongs English designer in the person o A. Scott, the champion of the tw engine movement, and it is w note that all the two-stroke Scott have possessed the feature of a cylinder. The new Curtiss eng the way, has two overhead valve stems being inclined at an angle o

A new sport which is quite fas vagaries of oc



1,700 MILES ON A 7 h.p. TWIN.

each other, and open direct into nder. British motor cyclists are love with this type of engine, as, a valve break, there is nothing to it being jammed through the top piston. Curtiss has provided for earing connecting rod, and it will uctive to observe how long it is l. It is a significant fact that rominent British firms have tried bearing connecting rod of late ut in each case there was trouble, have returned to the plain bear- This is the more noteworthy, as motor cycle manufacturers the lead and popularised ball crankshafts.

Prices for Motor Cycles in South Australia.

ader mentions in a letter that a hand motor bicycle in Brisbane 50. New machines of first-class manufacture cost from £70 to

o onlookers! Unfortunately the moch practice.

A Tricar for Rural Postal Work.

A chain-driven tricar propelled by a J.A.P. engine has recently been pressed into service by the Sittingbourne Post Office authorities for local collection and delivery of mails. The tricar, which has had the front seat replaced with a large mail basket, runs between Sittingbourne and Frinsted, a distance of nine miles, linking up several villages and hamlets *en route*. There will be a couple of deliveries and collections daily. Time after time we have drawn attention to the utility of motor cycles for postal delivery work. Motor cycles are easily the cheapest and speediest vehicles for covering scattered areas.

THE AUTO CYCLE UNION SEVENTH ANNUAL DINNER.

The A.C.U. dinner was held at the Waldorf Hotel on Thursday evening last, H.S.H. Prince Francis of Teck, K.C.V.O., D.S.O., president, occupying the chair. This excellent dinner was well attended, but not many provincial members were present. After the royal toasts the Chairman rose to propose the Auto Cycle Union." In these days, he said, when there were so many unions, he was pleased to regard the A.C.U. as one of the most successful and go-ahead. It was full of activity and initiative, and carried out its duties in a manner deserving of respect. He then referred to the Six Days' Trial and the T.T. Race, the blue ribbon of motor cycling sport, and congratulated H. A. Collier on his success. There was in this race, he continued, an event which especially commended itself to him, and that was the pluck and tenacity of A. J. Sproston, who rode throughout the competition with a broken ankle, suffering great agony, and this greatly excited his admiration. His great regret was that he (the speaker) had not been present to congratulate him after the race. He then referred to the racing, legal, and other work done by the Union, and reminded those present to remember the good work done by the Auto Cycle Legion, and the way that work had been appreciated by Sir Edward Ward. The thanks of the members were due to the secretary and the whole staff. With the toast he coupled the name of Mr. Robert Todd.

Friendly Relations with Other Bodies.

Mr. Todd, to the amusement of the Chairman, said he was glad to be able to say, as was said in higher circles, that their relations with other bodies were friendly. He was pleased to note that the local centres were in working order. Members from the country came up and said they wanted the Union to be doing something; this, he said, was a good way of getting it done. These centres could do much good work. Provincial members, while they should recollect that the Londoners did not want entirely to rule the roast, must not be forgetful of the fact that London is not altogether an unimportant place, and sometimes people were glad to have an excuse for coming up. Touching the cattle on the highway question, he was glad to note something was being done, as people must get used to the new fast traffic, and not exclusively consider the traffic that was not fast, except fast asleep. However, the agriculturist had to be considered. While they could not compel everybody and everything to carry a light after dark, something would doubtless be done soon, but they must move slowly. He concluded by saying how pleased he was to see the Chairman there, and also Mr. J. W. Orde (secretary of the R.A.C.), the tried and trusted friend of the A.C.U.

Colonel H. C. L. Holden, R.A F.R.S., then proposed the toast of "The Affiliated Clubs," and stated that the Union should feel proud and honoured to be associated with the R.A.C. He concluded by referring to the success of the R.A.C. affiliation scheme, and coupled with the toast of the R.A.C. and the affiliated clubs the name of Mr. Orde.

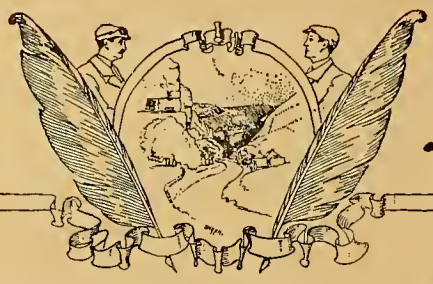
A Good Friend to the Union.

Mr. Orde, in reply, mentioned that though the Auto Cycle Union was one of the most important bodies affiliated to the Royal Automobile Club, it did not make the best of the advantages offered by the parent body. Mr. Todd was a good friend to the Union, but he hoped to be even a better, and the R.A.C. would be only too pleased to help the A.C.U. members. He then went on to refer to the splendid exhibition of pluck he had seen in the Isle of Man during the T.T. Race. In 1908 the membership of the R.A.C. and its associates was 10,000; now it is 17,000. He hoped the A.C.U. would progress with equal rapidity. Every member should get two or three people to join, and every club should increase its membership, and thus strive to swell the ranks.

Captain Sir R. K. Arbuthnot, Bart., R.N., in proposing "The Chairman," made a wholly irrelevant, altogether delightful, and really brilliant speech. Eulogising the Chairman briefly in his usual breezy manner, he talked of cut-outs, how foolish it was to seal them and then allow people to enlarge the holes; of the amateur question; of the lighting of cattle on the highway, mentioning that in Hong Kong every Chinaman had to carry a light and a number after dark (could not a leaf be taken out of their book?); and, lastly, of the Navy. On this subject the gallant Captain let himself go, and told the members not only the importance of a large and efficient Navy for the safety of our shores and those of our colonies, but the best way to get one, and, moreover, what would certainly happen if we did not get one.

After the Chairman had replied in a few well-chosen words, he distributed the prizes, and at the conclusion of a very excellent entertainment the proceedings came to an end.

CLUB NEWS



Norwich and District M.C.C.

A general meeting will be held at headquarters to-morrow (Tuesday) at 6.30 p.m. to discuss programme for 1909. All members are earnestly requested to attend.

Middlesbrough and District M.C.C.

On Wednesday evening, at the Corporation Hotel, Middlesbrough, at 7.45 p.m., Mr. A. Lauriston (the club's hon. solicitor) will read a lecture "The Law and its Relation to Motor Cyclists and Car Owners."

North-west London M.C.C.

At the recent annual general meeting Mr. G. Rowden was elected to the captaincy. Mr. T. G. Blundell resigning the position of vice-captain, Mr. H. V. Bate was elected in his place. Messrs. C. A. Stern and G. H. Hollis retain the positions of hon. secretary and hon. treasurer respectively.

Western District M.C.

At the annual general meeting the following amendments were made to the existing rules:

1. That an entrance fee of 2s. 6d. be now charged.
2. The headquarters of the club are now removed to the Green Man Hotel, Uxbridge Road, West Ealing.
3. The question of reaffiliation to the A.C.U. was left to the new committee, who are approaching the A.C.U. on a question which the majority of the members would like to have settled before deciding on affiliation.
4. Mr. T. A. Williams was elected a life member of the club in consideration of his past services.

The following are the officers and committee for the present year: President, Edward Smart; chairman, P. Snelling; vice-chairman, N. Hall; captain, H. E. Vowler; sub-captain, D. Steeves; auditor, W. F. Ritchie; committee, Messrs. Tweedie, Moss, Eagles, Butler, Dobson, Buckmaster, Thomas, Holloway, Caudwell, Armstrong, and L. Holloway; sports secretary, H. J. M. Hughes; hon. secretary and treasurer, I. J. G. Babbage.

A committee meeting is fixed for Friday, the 4th prox., at the new headquarters. The secretaries will be glad to hear from members who have suggestions for competitions and runs.

Bolton and District M.C.C.

The annual general meeting was held at beadquarters on the 19th inst., when it was decided to again affiliate to the Auto Cycle Union. The subscription was raised to 7s. 6d., which includes affiliation. The following are the officers and committee for the present year: President, A. R. Batten; chairman, S. Groom; vice-chairman, F. Taylor; joint secretaries, J. Foster, 34, All Saints' Street, Bolton, and J. Fishwick, 9, Georgina Street, Moses Gate; treasurer, J. Peters; captain, J. Fishwick; vice-captain, A. Horrocks; committee, Messrs. A. Richards, Nuttall, Yates, Woodall, Street, Orrell, Smith, and Green. Subscriptions are now due. Readers wishing to join should communicate with J. Foster, 34, All Saints' Street, Bolton.

FUTURE EVENTS.

Jan. 29—A.C.U. Quarterly Trial, Uxbridge to Banbury and Back.
" 29—Birmingham M.C.C Annual Dinner.
Feb. 18-26—Manchester Motor Cycle Show.
Mar. 12—M.C.C. Opening Run.
" 25—General Meeting of Northern Motor Cycle Clubs at Richmond, Yorks.
" 25—M.C.C. Easter Tour. Jarrott Cup Competition.
" 28—Brooklands A.R C. Easter Meeting
" 30 to April 2—Exhibition of Motor Cycles at Leicester, Association Hall.
Apl. 20—A.C.U. Quarterly Trials.
" 27-28—Brooklands A.R C. Meetings.
" 30—M.C.C. Members' Hill-climb.
May 13, 14, and 16 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.
" 26 (Thursday)—International Motor Cycle Tourist Trophy Race in the Isle of Man.
" 28—A.C.U. Open Hill-climb.

South Manchester M.C.C.

The first annual meeting of this club was held at headquarters, the Denmark Hotel, Greenheys, on the 19th inst. The balance-sheet for 1909 was adopted, and considered very satisfactory. Officers for the year were appointed, and a good programme of competitions and runs was mapped out. It was decided to affiliate with the A.C.U., and the annual subscription was raised to 10s. in order to cover the cost of affiliation.

Mr. R. Fisher was unanimously elected president of the club, and he kindly offered a trophy to be competed for during the year.

It is hoped that the energetic programme and facilities offered by the club will draw a large number of new members, and an invitation is held out to all motor cyclists in the district to communicate with the hon. secretary, Mr. F. Doodson, 15, Eileen Grove, Rusholme, who will be glad to supply any information as to membership.

Birmingham M.C.C.

The seventh annual dinner will be held at the Imperial Hotel, Temple Street, on Saturday next, the 29th inst. This is a special occasion, as it marks the club's attainment to a membership of 100. Ladies are cordially invited. A musical programme is being arranged.

Leith M.C.

The annual general meeting will be held in the Commercial Hotel, Commercial Street, Leith, on the evening of the 28th inst. at eight o'clock, when it is hoped there will be a large attendance of members and prospective members.

The Newcastle M.C.

On Wednesday next a whist drive will be held at the Royal Arcade Assembly Roms. It is hoped that a large number of members will attend and help to make this social event a success and a credit to the club. Tickets are 1s. 6d., including refreshments. The club secretary, Mr. A. G. Robson, 61, High Bridge Street, Newcastle-on-Tyne, will supply tickets.

Coventry and Warwickshire M.C.

The annual dinner has been postponed to early in February, permission not having yet been obtained for the use of St. Mary's Hall.

Members who have changed their addresses are requested to notify the secretary, Mr. E. W. Walford, as several circulars respecting the club have been returned to him undelivered to the addressee.

Ayr and District M.C.

The annual dinner was held in the Hotel Dalblair on Wednesday evening last, and was attended by a large and representative number of members and friends.

Mr. John Houston, the president, occupied the chair, Mr. Alf. Sommerville fulfilled the duties of croupier, and the prizes for last year's events were presented by Mr. W. G. Wallace. An excellent musical programme was provided, and the evening proved most successful.

THE MOTOR CYCLE

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FOUR PAGE SUPPLEMENT.
A.C.U. Quarterly Reliability Trials (Illustrated) Club News.

Subscription Rates: Home, 6s. 6d.; Canada, 8s. 8d. Foreign, 10s. 10d. per annum.
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Club Life.

A NORTHERN clubman wrote last week asking us to obtain the opinions of readers regarding the formation of clubs in large cities and towns solely for middle-aged riders, or, as he puts it, men between forty and fifty years of age. His complaint is that the majority of clubs are formed of active young men mostly bent on speed, and he instances a club which he joined last year, thinking that he was going to obtain pleasant companionship during his rides, and assistance in the way of touring and other matters appertaining to the use of the motor cycle. Whilst we are not of the opinion that clubs are needed with a membership confined to riders of any particular age, it might be advantageous for the executives of clubs which devote a very large portion of the year to competition work to consider whether they would not increase their membership by the inauguration of a touring section, with a sub-committee to deal with the branch of the pastime which particularly appeals to such as our correspondent.

The fact has always been before us that the chief supporters of the pastime are young men, but middle-aged and elderly men are taking up motor cycling in greater numbers every year, and the young enthusiasts of five years ago and to-day will in a few years time be on the *qui vive* for just the kind of easy-going club that our Northern friend is anxious to establish. We do not suggest that ordinary club runs are likely to fascinate even the middle-aged rider, because riding in close company is to be avoided for many reasons, the chief one being the nuisance created by dust; but there are many ways in which a club could be of the greatest assistance to middle-aged riders. By specially catering for them the present clubs could doubtless increase their ranks, but our correspondent thinks that there is room for a club in each large city and town which will be specially devoted to the interests of middle-aged riders who do not want to compete in hill-climbs, races, and other events, but require the companionship of other riders, and assistance and advice in touring matters.

Various Uses of a Motor Cycle.

WE think it is possible that there are some of our readers who would like to discuss this question, and if there is a desire for separate clubs on the lines suggested, we shall be glad to assist in their organisation by publishing in our Club News columns the names and addresses of those who are prepared to take the necessary steps towards their formation. Every motor cyclist regards the pastime from a different viewpoint. Some ride a motor cycle because it takes them over ground which they have not been able to reach previously on a pedal cycle in the duration of a short ride; others combine motor cycling with another pastime, such as riding to golf, tennis, fishing, or boating; but the greater number undoubtedly prefer some form of motor cycle sporting competition. A club is useful to all, and it remains to be seen if there are sufficient riders to support our correspondent's suggestion.

In connection with touring and legal advice, etc., readers should bear in mind that such bodies as the Auto Cycle Union and the Motor Union have special departments to deal with these matters, and are always prepared to assist their members, but they do not cater for local companionship, which our correspondent appears to desire most.

OCCASIONAL COMMENTS

BY "IXION"

A Clear Silencer.

Most motor cyclists are aware in theory that a choked silencer has very detrimental results upon the running of an engine, but I suspect few know by experience what a colossal braking power the back pressure due to choked exhaust orifices can exert. I own an engine which is fitted with a particularly efficient silencer, and for some weeks I was troubled with a gradually increasing loss of power which I could not trace to its origin. Everything was apparently in good order, and yet the engine would not develop any pace. At last things suddenly got so bad that with the levers set for thirty miles an hour the machine was only travelling at the merest crawl. Dismounting I happened to notice a jet of smoke issuing from the silencer in a constant stream though the engine was stopped. I had the silencer to pieces in a trice, and found that the holes in the baffle pieces were ridiculously small, and that the majority of theme were sooted up. Before replacing the exhaust box I had parts of it on the lathe, and drilled out the aforesaid holes. Oddly enough, the machine is still as silent as ever it was when throttled down—as silent as when the holes were clogged, even; but, naturally, the bark is somewhat louder when the engine is speeded up.

When the Plug Soots.

I met one rider who had been over-lubricating, and had endeavoured to cope with the trouble by merely changing his sparking plug, until all his spare plugs were so sooty that none of them would fire. Needless to say, this is a very makeshift method of dealing with a trouble which is rather apt to occur when a slipping belt or prolonged driving on a low gear has compelled the driver to use overmuch oil. If the cylinder is simply swimming with oil, the surplus should be got rid of before fitting a fresh plug. In winter time, when I am none too warm, I should remove the plugs and open the drain tap of the crank case, and then get rid of the oil by five minutes' pedalling on the stand, which would serve the additional purpose of restoring my circulation. In summer I should assist the process by a liberal injection of paraffin, but it is merely silly to soot up a clean plug without removing the cause of the trouble.

Skidding.

I wish I could persuade some of the fair weather brigade to put their fears in their pockets and attempt a little winter riding. There are thousands of motor cyclists who only ride when the roads are good, and they would be astounded if they essayed a little mud-plugging. With a modern machine and a good non-slipping tyre tread skidding is practically non-existent. Looking through my road book I find I have only had two real skids in the last three years, and both of these occurred in summer. Admitting that some care is required in traffic, and especially over tramlines, the side-slip bogey is vastly overdone. To my mind the only real problems of all weather riding are how to keep clean and how to keep warm, the latter being far and away the more difficult. I have been out on the roads the last week or two in all weathers by day and night, and I have met very few motor cyclists; I made a point of conversing with those I met, and they laughed at the idea of road surface dangers—none of them had tumbled this winter. One of them was very well fitted out for the cold weather with handle-bar muffs, three jackets, wading boots, and a cap with earholes guarded by rolls in front of the ears; another had a celluloid wind screen mounted on his handle-bars, and so hinged that it could be folded down when there was no wind; he said it kept him as cosy as if he were on board a car. Several of these machines were fitted with special winter guards of the Miller and Cameron types, and all the riders looked in the pink of health and condition.

The One Dangerous Surface.

There is one surface on which I should advise the most expert and enthusiastic of riders not to risk his neck. I speak feelingly, for I was recently trapped by a change in the weather on a long ride, and had a most fearsome time. It is when a gentle thaw succeeds a layer of snow which has covered the roads for several days. The four or five inches of snow first get trampled hard by a few days of traffic, and the nightly frosts solidify the surface into a coating of hard ice. Then the thaw comes and moistens the surface. If any rider has found tyres which can grip such a surface I shall be glad to hear of them, for I have not. It is true that I did not hurt myself, for I rode at the edge of the road, where the snow was comparatively untrodden until I neared a town, and here my machine turned at right angles, and took me down a side road in which I took not one atom of interest. Deterred by this incident, I got off and walked to the railway station. Rubber studs proved as bad as steel studs were on the last occasion when I was faced by such conditions, and the machine was practically unsteerable.

Tyres in Winter.

I believe the fear of punctures is one of the main deterents to ardent riding in winter, and I must confess there is no more heartrending situation than to be stranded on a lonely road with a tyre to mend when the thermometer is down towards zero. But why risk such a situation? Personally, I always see that my covers are a nice easy fit before I go out in bad weather. If a new cover is to be used I work it on and off the rims several times at home in the warmth of a fire before ever I take it on the road, till at last it can be detached without tools if desired. Then, though I may go out in summer without any butt-enders, I never dream of venturing forth in winter without at least a couple of these invaluable accessories. If a puncture befall me amid the snow or when a bleak east wind howls over the frozen roads I know I can slip a new tube into place within five minutes, and there are no terrors about this operation. Pumping up the new tube will destroy any chilliness incurred in fitting.

BORE-STROKE RATIO & EFFICIENCY.

A REPLY TO A. A. SCOTT'S CRITICISM.

By JAMES L. NORTON, A.M.I.A.E.

I HAVE read with some pleasure Mr. Scott's criticism of my article on "Bore-stroke Ratio and Efficiency," and must confess I am not surprised that the criticism makes out anything but a strong case for the short-stroke engine. In fact, I think it strengthens the case for the long stroke rather than otherwise.

I will consider consecutively the several points of the criticism, the earlier portions of which, however, have no bearing upon the question at issue. Nevertheless, as they tend to place my arguments in a somewhat false light, I think it well to call attention to one or two of them.

Exception is taken to what Mr. Scott terms my extreme comparison. Now the engines I gave for illustration were one 100 mm. bore by 64 mm. stroke, and one of 80 mm. bore and 100 mm. stroke. In the first case the bore is thirty-six per cent. greater than the stroke length, and in the second case the bore equals eighty per cent. of the stroke.

Mr. Scott gives as his illustration engines of 2¾in. bore by 2⅛in. stroke and 2in. bore by 4in. stroke. In the first case the bore is slightly less than thirty per cent. greater than the stroke, and in the second case the bore only equals fifty per cent. of the stroke—the stroke being *double* the bore diameter. Between my two engines there is a stroke difference of thirty-six per cent. Between Mr. Scott's two engines there is a stroke difference of forty-six per cent.—a ten per cent. greater extreme of comparison than mine, to which he takes exception.

Actual and Isothermal Pressures.

Again, Mr. Scott takes me to task for using the word "absolute," but omits to mention that I coupled with it the words "actual pressure," making it clear that the word "absolute" was used in its ordinary colloquial sense. Perhaps it would have been better to have relied upon the word "actual" only. My use of the word "isothermal" is also misconstrued. Surely Mr. Scott does not suggest that the pressure first mentioned is other than isothermal. He says that "isothermal compression does not take place in an ordinary motor cycle engine." I did not say or imply that it did. My use of the word requires no explanation. Mr. Scott's remarks are evidence that he understands fully the use of the term, yet he implies error on my part, and then by his own calculations proves my statements as to pressures to be correct.

Such criticism as this helps no one, and surely implies lack of sound argument.

It is with reluctance that I write this, but I feel compelled, in justice to myself and to the question at issue, to draw attention to what may, by casual readers, be mistaken for sound reasoning against the long-stroke engine.

Upon the matter of thermal efficiency, it is agreed between us that the long stroke is superior, and that it is necessary to run the short stroke at a higher rate of revolution to give equal power.

Mr. Scott says that "the same advantage is gained by adopting the overhead valve type as by increasing the stroke ratio." He appears to be digressing here from the subject matter.

It is hardly germane to this discussion to state that the short-stroke engine with overhead valves is as efficient as a long stroke with side valves. If the short-stroke engine needs the overhead type of valve to equal the long stroke with side valves, what happens if we adopt the overhead type to the long stroke?

I do not propose to follow my critic in his dissertation on the two-stroke engine, to which my article had no reference.

Frictional Loss caused by Piston Rings.

The argument under the heading "Frictional loss caused by piston rings" is misleading. It is acknowledged that the piston ring of large diameter gives greater pressure and friction than the small ring, but it is claimed that the large ring could be made to exert the same pressure and friction as the small one. This assumes that the small one could not or would not be improved, but it stands to reason that if the large ring can be improved, so also could the smaller one in the same proportion.

A similarly misleading argument is brought to bear in regard to piston load. It is said, "As for the extra load on the short-stroke piston, this could be met by proportionately designed bearings." My critic omits to mention that the same applies to both engines, and the fact remains that, whether plain or ball bearings are used, those of the short stroke have to sustain the heavier load, and the long-stroke engine retains the advantage.

To return to the friction of piston rings. It is said "the long stroke has the extra friction of moving its rings through a further distance of 7½in. for every four strokes," but the fact is overlooked that the total frictional and thermal losses of the short stroke are multiplied by the necessity for a higher speed of revolution. The statement that "the long-stroke engine has to develop an extra amount of power" to com-

Bore-stroke Ratio and Efficiency.—

pensate for extra friction is therefore incorrect, as is also that which reads "the friction of the piston against the cylinder walls is scarcely worth taking into account if long connecting rods are used." This is not a negligible friction, and is much greater in the short stroke, with its 355 lbs. piston load and 5.3in. connecting rod, than in the long stroke, with its 188 lbs. load and 10in. connecting rod, even though the angularity of thrust be the same; therefore the alleged "distinct gain in mechanical efficiency" of the short stroke fails to materialise. My critic's conclusions on these points appear to have been arrived at from an entirely assumed set of conditions.

Load on Bearings.

Further, in an attempt to belittle the detrimental effects of the heavier load on short-stroke bearings, it is said "the extra load is only momentarily applied at dead centre." Quite so, but it is at this moment of first application that the effect of friction and consequent loss thereby is greatest. The criticism maintains that "the load on main bearings of the long-stroke engine is increased by the leverage of the longer crank." I cannot agree with this, the contrary being the fact. My critic's own figures and diagram (fig. 4, page 49) show that the actual load on the long-stroke engine is 376 lbs., whilst that on the short stroke is 543 lbs. (355 lbs. piston load × 188 lbs. belt pull)—a difference of 167 lbs. in favour of the long stroke. In other words, he proves the load on the latter is less than seventy per cent. of that on the short-stroke bearings. In fact, in this connection he turns the guns on his own ranks, and the arguments and figures presented to champion the short stroke favour the long stroke.

Again, the belt pull is assumed to increase the main bearing load. On this matter the argument also appears to be based on assumed and not actual conditions, since the combined piston load and belt pull could only be applied (as in his diagram fig. 4) if the engine were horizontal and at equal height, or approximately so, with the upper edge of rear belt rim, or placed head downwards at somewhere near the angle of forty-five degrees if the engine pulley were in the usual position. As a matter of fact, the usual angle of belt pull is such as to *decrease* the main bearing load due to piston thrust, and this to a much greater proportion in the long stroke. This, in my opinion, is another argument against the short stroke.

It is said that, "since revolutions per minute are limited by piston speed, the short stroke can be run at a greater number of revolutions than the long stroke." This statement appears to be generally accepted, but I think it is scarcely correct. I am of opinion that piston speed is limited by strength of materials and power of impulse, and that piston speeds are attainable far in excess of what are required to reach the limit of speed at which a motor cycle can be safely driven. Factors which limit the number of revolutions are: (1) Ingress and egress of the gases, and (2) speed of combustion and expansion, rather than piston inertia.

If this be so, then either type of engine may be run at equal revolutions until the limit speed of induction, expansion, etc., is reached.

Under the heading "Inertia of Parts," it is stated that "a large diameter piston can be made lighter in proportion to its size than a small diameter piston." I would ask for an explanation of this assertion. It appears to me to be incorrect. A smaller piston can safely be made with proportionately thinner top and walls and be of equivalent strength to a larger one, and since it is smaller, shorter, and thinner, the converse of my critic's statement must be correct.

Length and Weight of Connecting Rods.

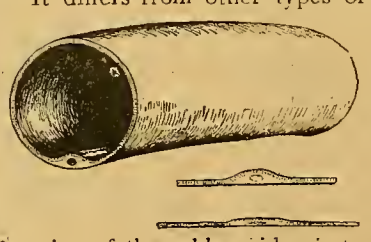
Concerning length and weight of connecting rod—here again assumed conditions form the basis of argument. Even if, for argument sake, the connecting rod for the long-stroke engine is double the length of that of the short stroke, it is by no means necessary that it should be double the weight, for, as has already been shown on both sides, the load on the longer rod is little more than half that on the shorter one.

I feel I must protest once more against my critic's method of reply. On the point of safe piston speed and pressure on cylinder walls, he states, "We have given the same proportion of connecting rod length in both cases"—and just previously he had been criticising the weight of a connecting rod of 10in., but now, in attempting to score a point concerning the pressures, he calmly shortens this rod in order to demonstrate "the additional frictional losses in the long-stroke engine." Now if this shortened rod be considered, then his previous figures concerning the effect of weight on inertia stresses cannot apply. Alternatively, if he were to shorten in the same proportion his 5.3in. connecting rod, would not the additional frictional losses likewise increase in the short-stroke engine?

I have now dealt with the principal points of Mr. Scott's criticism, and shown that his arguments are not favourable to the short-stroke engine, but really serve to strengthen my original case for the long stroke.

ANOTHER REINFORCED INNER TUBE.

THE accompanying illustration is that of a section of a reinforced air tube for motor cycles which has been invented by Mr. F. H. Hall, of the Electric Ignition Co., Ltd., Sampson Road North, Birmingham. It differs from other types of reinforced tubes by having the fabric carried right round the sectional circumference of the tube, and having at the base a moulded rubber portion provided with a cored hole to reduce weight. The function of the rubber ridge is to partially pleat the fabric, so that when the tube is fully inflated the effect is to compress or stretch the rubber portion, and allow the tube to expand to the required extent, the limit of stretch being at a point beyond that at which the outer cover is completely filled by the air tube.



It is claimed for this tube that small punctures are sealed automatically, owing to the rubber being in a state of compression when fully inflated; also that the walls of the tube are of the same strength throughout, owing to the fabric completely encircling the circumference of the section. The tubes, it is said, will stand a pressure of 200 lbs. without bursting when inflated out of the cover. There is therefore no possibility of a burst if the outer cover gets cut.

MOTOR CYCLE RECORDS ACCEPTED IN THE U.S.A.

BELOW is a list of motor cycle records accepted by the Federation of American Motor Cyclists (the governing body of the pastime in America), revised and corrected to January 1st, 1910, by F. L. Valiant. It will be noticed that our American cousins have a separate list of "amateur records," but we may explain that the American amateur definition is very different from the English one. A trade rider is an amateur in America, provided he has never competed for a cash prize. For detailed definition see page 61 last week. We are assured by Dr. J. P. Thornley (chairman of the F.A.M. Competition Committee) that "the records have been made with the greatest care and under the strictest supervision." He adds: "There are no records in the world which have been more carefully gotten up, and every possible factor of error eliminated. It gives me great pleasure to forward this list to you, and the Federation of American Motor Cyclists will greatly appreciate your publishing these records in your valuable journal":

AMATEUR RECORDS.

Distance.	Holder.	Where made.	Date.	Time.
			1909.	h. m. s.
1 kilo	C. Spencer..	Springfield, Mass.	Oct. 23	0 28⅖
*1 kilo	C. Gustafson	Springfield, Mass.	Oct. 23	0 39
*1 mile	C. Spencer..	Springfield, Mass.	Oct. 23	0 55⅘
1 mile	Fred Huyck	Springfield, Mass.	July 31	0 42⅗
2 miles	Fred Huyck	Springfield, Mass.	July 31	1 27⅖
3 miles	Fred Huyck	Springfield, Mass.	July 31	2 12
4 miles	Fred Huyck	Springfield, Mass.	July 31	2 55⅘
5 miles	Fred Huyck	Springfield, Mass.	July 31	3 40⅕
6 miles	Fred Huyck	Springfield, Mass.	July 31	4 38⅗
7 miles	Fred Huyck	Springfield, Mass.	July 31	5 24⅖
8 miles	Fred Huyck	Springfield, Mass.	July 31	6 9⅗
9 miles	Fred Huyck	Springfield, Mass.	July 31	6 55⅗
10 miles	Fred Huyck	Springfield, Mass.	Sept. 6	7 42⅗
11 miles	Fred Huyck	Springfield, Mass.	Sept. 6	8 29⅗
12 miles	Fred Huyck	Springfield, Mass.	Sept. 6	9 15⅘
13 miles	Fred Huyck	Springfield, Mass.	Sept. 6	10 2⅖
14 miles	Fred Huyck	Springfield, Mass.	Sept. 6	10 50⅕
15 miles	Fred Huyck	Springfield, Mass.	Sept. 6	11 36⅖
16 miles	Fred Huyck	Springfield, Mass.	Sept. 6	12 23⅖
17 miles	Fred Huyck	Springfield, Mass.	Sept. 6	13 12⅖
18 miles	Fred Huyck	Springfield, Mass.	Sept. 6	13 58⅖
19 miles	Fred Huyck	Springfield, Mass.	Sept. 6	14 44⅗
20 miles	Fred Huyck	Springfield, Mass.	Sept. 6	15 31⅕
21 miles	Fred Huyck	Springfield, Mass.	Sept. 6	16 17⅕
22 miles	Fred Huyck	Springfield, Mass.	Sept. 6	17 4⅗
23 miles	Fred Huyck	Springfield, Mass.	Sept. 6	19 3
24 miles	Fred Huyck	Springfield, Mass.	Sept. 6	19 53
25 miles	Fred Huyck	Springfield, Mass.	Sept. 6	20 54
30 miles	Fred Huyck	Springfield, Mass.	Sept. 6	25 14⅖
35 miles	Fred Huyck	Springfield, Mass.	Sept. 6	29 20⅖
40 miles	Fred Huyck	Springfield, Mass.	Sept. 6	33 22⅗
45 miles	Fred Huyck	Springfield, Mass.	Sept. 6	37 39
50 miles	Fred Huyck	Springfield, Mass.	Sept. 6	41 49⅗
55 miles	Fred Huyck	Springfield, Mass.	Sept. 6	46 10⅕
60 miles	Fred Huyck	Springfield, Mass.	Sept. 6	50 24⅗
65 miles	Fred Huyck	Springfield, Mass.	Sept. 6	54 32⅕
70 miles	Fred Huyck	Springfield, Mass.	Sept. 6	58 48⅗
			1908.	
75 miles	R. Stubbs ..	Birmingham, Ala.	Nov. 24	1 20 0⅕
80 miles	R. Stubbs ..	Birmingham. Ala.	Nov. 24	1 25 19⅗
85 miles	R. Stubbs ..	Birmingham, Ala.	Nov. 24	1 30 37
90 miles	R. Stubbs ..	Birmingham, Ala.	Nov. 24	1 36 3
95 miles	R. Stubbs ..	Birmingham, Ala.	Nov. 24	1 42 3⅘
			1909.	
100 miles	M. J. Graves	Los Angeles, Cal.	July 18	1 27 49
200 miles	C. Spencer..	Springfield, Mass.	Oct. 1	3 55 20
300 miles	C. Gustafson	Springfield, Mass.	Oct. 1	5 48 55
400 miles	C. Gustafson	Springfield, Mass.	Oct. 1	8 12 36
500 miles	C. Spencer..	Springfield, Mass.	Oct. 2	10 22 36
600 miles	C. Spencer..	Springfield, Mass.	Oct. 2	13 15 16
700 miles	C. Spencer..	Springfield, Mass.	Oct. 2	15 25 26
800 miles	C. Spencer..	Springfield, Mass.	Oct. 2	17 37 31
900 miles	C. Spencer..	Springfield, Mass.	Oct. 2	19 46 0
1000 miles	C. Spencer..	Springfield, Mass.	Oct. 2	22 20 59

Time.	Holder.	Where made.	Date.	Distance.
			1909.	mls. yds.
1 hour	Fred Huyck	Springfield, Mass.	Sept. 6	71 620
2 hours	M. J. Graves	Los Angeles, Cal.	July 18	134 880
3 hours	C. Spencer..	Springfield, Mass.	Oct. 1	145 587
4 hours	C. Spencer..	Springfield, Mass.	Oct. 1	204 587
5 hours	C. Gustafson	Springfield, Mass.	Oct. 1	246 1174
6 hours	C. Gustafson	Springfield, Mass.	Oct. 1	300 1174
7 hours	C. Gustafson	Springfield, Mass.	Oct. 1	333 1174
8 hours	C. Gustafson	Springfield, Mass.	Oct. 2	388 1174
9 hours	C. Gustafson	Springfield, Mass.	Oct. 2	441 —
10 hours	C. Spencer..	Springfield, Mass.	Oct. 2	482 —
11 hours	C. Spencer..	Springfield, Mass.	Oct. 2	512 —
12 hours	C. Spencer..	Springfield, Mass.	Oct. 2	559 587
13 hours	C. Spencer..	Springfield, Mass.	Oct. 2	585 —
14 hours	C. Spencer..	Springfield, Mass.	Oct. 2	641 587
15 hours	C. Spencer..	Springfield, Mass.	Oct. 2	677 587
16 hours	C. Spencer..	Springfield, Mass.	Oct. 2	730 —
17 hours	C. Spencer..	Springfield, Mass.	Oct. 2	767 587
18 hours	C. Spencer..	Springfield, Mass.	Oct. 2	812 587
19 hours	C. Spencer..	Springfield, Mass.	Oct. 2	862 587
20 hours	C. Spencer..	Springfield, Mass.	Oct. 2	911 —
21 hours	C. Spencer..	Springfield, Mass.	Oct. 2	945 587
22 hours	C. Spencer..	Springfield, Mass.	Oct. 2	986 1174
23 hours	C. Spencer..	Springfield, Mass.	Oct. 2	1035 1174
24 hours	C. Spencer..	Springfield, Mass.	Oct. 2	1093 1151

PROFESSIONAL RECORDS.

Distance.	Holder.	Where made.	Date.	Time.
			1905.	h. m. s.
1 kilo	H. Cissac ..	Blackpool, Eng.	July 27.	0 25⅗
*1 kilo	H. Cissac ..	Blackpool, Eng.	July 27	0 35
			1908.	
*1 mile	J. Derosier	Clifton, N.J.	July 26	1 2
			1908.	
1 mile	J. Derosier	Springfield, Mass.	July 31	0 43⅕
2 miles	J. Derosier	Springfield, Mass.	Sept. 18	1 32
3 miles	J. Derosier	Springfield, Mass.	Sept. 18	2 20
4 miles	J. Derosier	Springfield, Mass.	Sept. 18	3 7⅗
5 miles	J. Derosier	Springfield, Mass.	Sept. 18	3 55⅗
6 miles	J. Derosier	Springfield, Mass.	Sept. 18	4 45
7 miles	J. Derosier	Springfield, Mass.	July 31	5 34
8 miles	J. Derosier	Springfield, Mass.	Sept. 18	6 20⅗
9 miles	J. Derosier	Springfield, Mass.	Sept. 18	7 8⅗
10 miles	J. Derosier	Springfield, Mass.	Sept. 18	7 56⅗
11 miles	J. Derosier	Springfield, Mass.	Sept. 18	8 45
12 miles	J. Derosier	Springfield, Mass.	Sept. 18	9 33⅗
13 miles	J. Derosier	Springfield, Mass.	Sept. 18	10 21⅗
14 miles	J. Derosier	Springfield, Mass.	Sept. 18	11 11⅕
15 miles	J. Derosier	Springfield, Mass.	Sept. 18	12 0
16 miles	J. Derosier	Springfield, Mass.	Sept. 18	12 47⅘
17 miles	J. Derosier	Springfield, Mass.	July 31	13 42
18 miles	J. Derosier	Springfield, Mass.	July 31	14 30⅘
19 miles	J. Derosier	Springfield, Mass.	July 31	15 19⅘

*From a standing start. (Under the rules the only standing start records recognised are those at distances of 1 mile and 1 kilometre; all others shall be timed from a flying start.)

PROFESSIONAL RECORDS (continued).

Distance.	Holder.	Where made.	Date.	Time.
			1909.	h. m. s.
20 miles	J. Derosier	Springfield, Mass.	July 31	16 8 3/5
21 miles	J. Derosier	Springfield, Mass.	July 31	16 57 1/5
22 miles	J. Derosier	Springfield, Mass.	July 31	17 45 3/5
23 miles	J. Derosier	Springfield, Mass.	July 31	18 34 2/5
24 miles	J. Derosier	Springfield, Mass.	July 31	19 24 2/5
25 miles	J. Derosier	Springfield, Mass.	July 31	20 13 2/5
30 miles	J. Derosier	Los Angeles, Cal.	April 18	29 41
35 miles	J. Derosier	Los Angeles, Cal.	April 18	35 23 2/5
40 miles	J. Derosier	Los Angeles, Cal.	April 18	38 55 1/5
45 miles	J. Derosier	Los Angeles, Cal.	April 18	43 29
50 miles	J. Derosier	Los Angeles, Cal.	April 18	48 21
55 miles	J. Derosier	Los Angeles, Cal.	April 18	53 14
60 miles	J. Derosier	Los Angeles, Cal.	April 18	57 51
65 miles	J. Derosier	Los Angeles, Cal.	April 18	1 4 27 2/5
70 miles	J. Derosier	Los Angeles, Cal.	April 18	1 9 7 1/5
75 miles	J. Derosier	Los Angeles, Cal.	April 18	1 13 46
80 miles	J. Derosier	Los Angeles, Cal.	April 18	1 18 34 1/5
85 miles	J. Derosier	Los Angeles, Cal.	April 18	1 23 25 3/5
90 miles	J. Derosier	Los Angeles, Cal.	April 18	1 28 18 1/5
95 miles	J. Derosier	Los Angeles, Cal.	April 18	1 33 12 2/5
100 miles	J. Derosier	Los Angeles, Cal.	April 18	1 37 59 3/5
200 miles	H. Martin ..	Canning Town, E.	Feb. 15	4 5 54 3/5
300 miles	H. A. Collier	Canning Town, E.	May 5	6 6 28
400 miles	H. A. Collier	Canning Town, E.	May 5	9 6 25 4/5

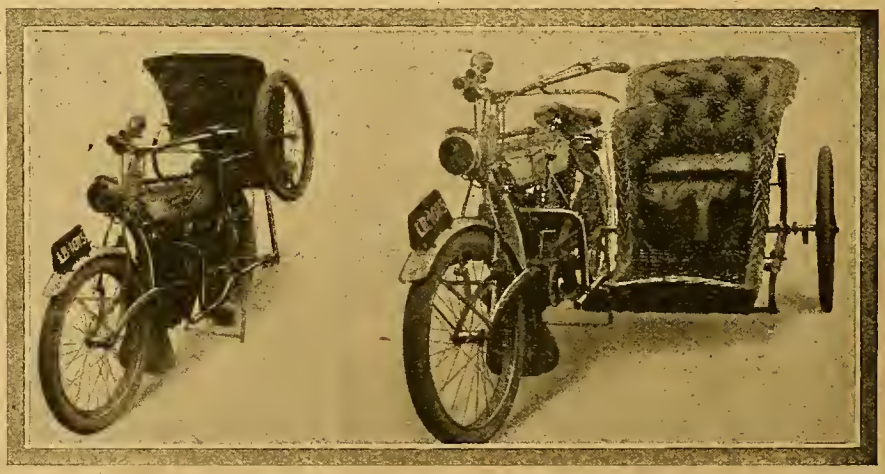
Time.	Holder.	Where made.	Date.	Distance.
			1908.	mls. yds.
1 hour	C. R. Collier	Brooklands, Eng.	Oct. 8	68 1380
			1909.	
2 hours	H. V. Colver	Brooklands, Eng.	Oct. 9	118 719
3 hours	H. Martin	Brooklands, Eng.	Nov. 22	165 936
4 hours	H. Martin	Canning Town, E.	Feb. 15	194 1320
5 hours	H. A. Collier	Canning Town, E.	May 5	245 640
6 hours	H. A. Collier	Canning Town, E.	May 5	294 800
7 hours	H. A. Collier	Canning Town, E.	May 5	326 640
8 hours	H. A. Collier	Canning Town, E.	May 5	364 1480
9 hours	H. A. Collier	Canning Town, E.	May 5	396 80
10 hours	H. A. Collier	Canning Town, E.	May 5	411 —
11 hours	H. A. Collier	Canning Town, E.	May 5	445 1462
12 hours	H. A. Collier	Canning Town, E.	May 5	471 784
13 hours	H. A. Collier	Canning Town, E.	May 6	506 1260
14 hours	H. A. Collier	Canning Town, E.	May 6	508 —
15 hours	H. A. Collier	Canning Town, E.	May 6	522 1590
16 hours	H. A. Collier	Canning Town, E.	May 6	566 —
17 hours	H. A. Collier	Canning Town, E.	May 6	599 1700
18 hours	H. A. Collier	Canning Town, E.	May 6	611 330
19 hours	H. A. Collier	Canning Town, E.	May 6	648 586
20 hours	H. A. Collier	Canning Town, E.	May 6	680 —
21 hours	H. A. Collier	Canning Town, E.	May 6	690 586
22 hours	H. A. Collier	Canning Town, E.	May 6	725 1390
23 hours	H. A. Collier	Canning Town, E.	May 6	730 940
24 hours	H. A. Collier	Canning Town, E.	May 6	775 1340

STRAIGHTAWAY RECORDS—AMATEUR

Distance.	Holder.	Where made.	Date.	Time.
			1909.	m. s.
1 kilo	W. Goerke..	Daytona, Fla. ..	Mar. 25	0 27 4/5
1 mile	R. Stubbs ..	Daytona, Fla. ..	Mar. 25	0 43 2/5
5 miles	W. Goerke..	Daytona, Fla. ..	Mar. 24	3 30 1/5

THE HOME GARAGE SIDECAR.

THE Bramson Home Garage Sidecar was fully described in *The Motor Cycle* of November 29th, 1909 (page 940). It is therefore needless to repeat the technical description of this machine, but as we are now enabled to illustrate it, a few points regarding the various advantages it offers will be of interest. From the description referred to above there appears to be a good deal to do to fold up the attachment. This is really not the case, and the whole thing may be folded up in about three minutes. Once folded up, not more than about 25in. of space are taken up laterally, consequently the machine may be wheeled down a narrow passage. Again, though so easily detachable the device is perfectly rigid, the knuckle joints providing the folding arrangements being encased in tubes when the sidecar is ready for the road; consequently these joints are held perfectly tight, and there is nothing whatever to prevent the machine being quite as rigid as the ordinary type of sidecar. Two models are made: Grade B, with one invisible joint without swivel. The wheel of the sidecar is turned up horizontally over the cycle, and held firmly on the luggage-carrier by a special fastener, so held the combination does not take up a space exceeding 27½in. wide. This is sold at a very moderate price. Grade A, with two invisible joints and special swivel to turn the chair round to the luggage-carrier. This closes up to about 26½in., or 23in. when the chair is folded, and costs about £2 more than the aforenamed. For quite a moderate sum any make of sidecar can be converted to fold up in this way. Mr. Bramson, 5, Farleigh Road, Stoke Newington, N., is most confident of the success of his invention, and we must admit that it displays great ingenuity. He is able to deliver these machines expeditiously.



Bramson's folding sidecar fitted to a two-speed V.S.

CURRENT CHAT

TIME TO LIGHT LAMPS

Jan. 31	...(GREENWICH)	5.44 p.m.
Feb. 2	... ...	5.48 „
„ 4	... ...	5.51 „
„ 7	... ...	5.57 „

Next Week.

The Motor Cycle Buyers' Guide, being a complete list of British and foreign motor cycles on the market, together with a full specification of each model.

Benzol as a Fuel.

Mr. W. Gibbons, whose photograph appeared in last week's issue of *The Motor Cycle*, showing him taking a voter to the poll on his Scott and sidecar, informs us that he is using benzol with excellent results.

The First Competition of 1910.

The record entry received for last Saturday's Quarterly Trial bodes well for this year's competitions. The fight for the silver cup for the best aggregate performances in the four Quarterly Trials of 1910 will be keener than ever this year. Next week we hope to give a detailed list of the marks gained by the competitors in Saturday's event.

A Record Holder laid up.

We regret to have to announce that O. C. Godfrey, the holder of the single-cylinder hour record, is laid up in a nursing home in Hampstead with a broken leg. The *fons et origo mali* is not motor cycling, but roller skating—a far more dangerous form of amusement.

Motor Cycle Repairers.

It was recently announced in these pages that the Touring Department of the Royal Automobile Club had decided to officially appoint repairers who make a speciality of motor cycle work. So far only one repairer has been appointed. Motor cyclists who have the interests of their brethren at heart should on finding a repairer who does his work satisfactorily get him to communicate with the secretary of the R.A.C., 119, Piccadilly, and be prepared to vouch for his satisfactory work if called upon to do so. In this way a list of good motor cycle repairers in all parts of the country will be drawn up, and members of the Auto Cycle Union, its affiliated clubs, and others will know to whom to go when they are in trouble on tour. To make the scheme the success it deserves, motor cyclists should endeavour to bring the names of reliable people before the R.A.C. with as little delay as possible.

SPECIAL FEATURES

FIRST QUARTERLY TRIALS OF 1910.

THE 1910 END-TO-END TRIALS ROUTE.

MOTOR CYCLE RECORDS ACCEPTED IN U.S.A.

The Electrically-propelled Bicycle not far off (?)

Edison's wonderful storage battery is once again the subject of newspaper comment. It is said that on a recent trial the batteries propelled a tram-car laden with people quite satisfactorily, and the cost was equal to only one halfpenny per mile. We are promised wonderful things in the way of electrically-propelled bicycles if this much talked of battery ever does materialise.

I.R. Licences issued in 1908.

Licences issued to owners of motor cycles by the Inland Revenue authorities for the year ended December 31st, 1908, totalled 35,784. Of these, 32,355 were taken out in England, and the remainder (3,429) in Scotland. Up to the present, motor cycles used in Ireland have been free of this particular tax, but should the Budget be eventually passed—and there is a possibility that it will—this Irish grievance will be removed!

Sydney Motor Cycle Club's Hill-climb.

In latest advices from "down under" we learn of the victory of F. Flew on a 5 h.p. V.S. in a hill-climb at Dundas on the 18th ult. J. Maguire (2 h.p. Moto-Rêve) was second, and T. W. Verdant (5 h.p. V.S.) third, out of a field of twelve starters. In the eliminating rounds, competitors were despatched in pairs, and the final left the above three, who made one race of it, and finished in the order given.

Mr. Alfred R. Abbott, jun., and his 8 h.p. Matchless and sidecar, which he used on the 21st inst. for carrying voters to the poll at Enfield. The same machine was entered for Saturday's Quarterly Trial, which is described in this week's supplement.

Production of Motor Cycles in 1907.

The first returns made by motor cycle manufacturers of the kingdom to the Board of Trade under the provisions of the Census of Production Act, 1906, have now been issued. The summary shows that during 1907 3,600 motor cycles were made in this country, of the value of £135,000. Of these, 800 were exported, of the value of £28,000. Foreign imports of motor cycles numbered 1,700 complete machines, valued at £48,000. Of course, since 1907 the number of motor cycles produced has very greatly increased.

Local Taxation Licences.

It seems that at present at any rate the authorities have no right to demand that applicants should furnish the registration numbers of their machines on their licence forms. Those who do not wish to comply with this request should, in the event of their application being refused, tender it again in the presence of two witnesses. This is the advice *The Autocar* is giving to its readers.

The German Motor Cyclists' Corps.

By virtue of a compact between the Deutsche Motorfahrer-Vereinigung and the German military authorities, which will be binding on both parties until the end of March, 1911, and subsequently tacitly renewable each year unless notice of annulment be given by either party, a German motor cyclists' corps has at length crystallised into an accomplished fact. Members of the corps will be known officially as "Schnellfahrer," or express orderlies. Over and above the sum of 200 marks to cover cost of clothing, equipment, and underwear, payable on the day when he joins the forces in the event of mobilisation, the "Schnellfahrer" (who must be a healthy German citizen with a clean legal record) receives 13 marks a day, payable in advance each time for a period of ten days. Of this amount, 1 mark covers wear and tear of clothing and underwear, and 2 marks are regarded as extra allowance. The maximum pension of a disabled "Schnellfahrer" can reach 2,544 marks (£127 2s.) per annum. Besides the above-mentioned pay for services, the "Schnellfahrer" get free rations, as well as gratuitous medical treatment. Moreover, the War Office buys his machine at a price estimated by experts as soon as ever he commences service, also supplies him with a pistol or revolver, and bears all expenses of travelling and transport to and from the rider's residence and the place of service.

The Six Days' Trial.

The first entries for the Land's End to John-o'-Groat's Trial in July are three twin-cylinder lightweight Douglas motor cycles.

The Great Paris Flood.

The floods in Paris reached such proportions on Thursday of last week that all the motor factories in the districts of Suresnes and Puteaux had been abandoned with the exception of the Panhard and Levassor, Mors, and Gladiator shops.

Manufacturers Experiencing a Heavy Demand.

Five months for delivery sounds a long way ahead, but we are assured that it is none the less true that a certain firm of motor cycle manufacturers stipulate this time for delivery of their new models, so heavy is the demand.

American Motor Cycle Records.

A list of authentic motor cycle records as recognised by the Federation of American Motor Cyclists is published in this issue. Americans have not claimed all our British riders' records, as we expected they would, but instead they have sub-divided the list into "Amateur" and "Professional" records. There is no such thing as an amateur record in this country at present.

A Champion Tennis Player and Motor Cyclist.

Mr. A. F. Wilding, New Zealand's champion tennis player, is still an ardent motor cyclist, and a rider of a spring-frame Bat. In a recent issue of the *New Zealand Motor and Cycle Journal* he related his experiences on Continental tours and during the Land's End to John-o'-Groat's Run of 1908. In the last-mentioned trial many readers will remember that he gained a gold medal and the special prize for best performance of a private owner.

Racehorse v. Motor Cycle.

The £100 wager referred to in last week's issue is causing quite a stir, and everybody wishes to see the race. The general opinion seems to be that the motor cyclist will win, especially as he has stipulated a flying start.

Three Shows in 1910.

We are in a position to announce that there will be two motor cycle shows this year, the Stanley at the Agricultural Hall November 11th to 19th, and the Cycle and Motor Trades Association Show at Olympia, also in November. There will be, therefore, three weeks of motor and cycle shows in 1910, if, as is likely, the car show at Olympia precedes the Stanley, and the motor cycle and cycle show at Olympia follows the Stanley.

FUTURE EVENTS.

Feb. 18-26—Manchester Motor Cycle Show, City Exhibition Hall, Deansgate.
Mar. 12—M.C.C. Opening Run.
" 16—(Wed.) British Motor Cycle Racing Club Meeting at Brooklands
" 25—General Meeting of Northern Motor Cycle Clubs at Richmond, Yorks.
" 25—M.C.C. Easter Tour. Jarrott Cup Competition.
" 28—Brooklands A.R.C. Easter Meeting.
" 30 to April 2—Exhibition of Motor Cycles at Leicester, Association Hall.
Apl. 13—(Wed.) B.M.C.R.C. Meeting at Brooklands.
" 20—A.C.U. Second Quarterly Trial.
" 27-28—Brooklands A.R.C. Meetings.
" 30—M.C.C. Members' Hill-climb.
May 4—B.M.C.R.C. Meeting at Brooklands.
" 13, 14, and 16 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.
" 26 (Thursday)—International Motor Cycle T.T. Race in the Isle of Man.
" 28—A.C.U. Open Hill-climb.

Free Engine Clutches.

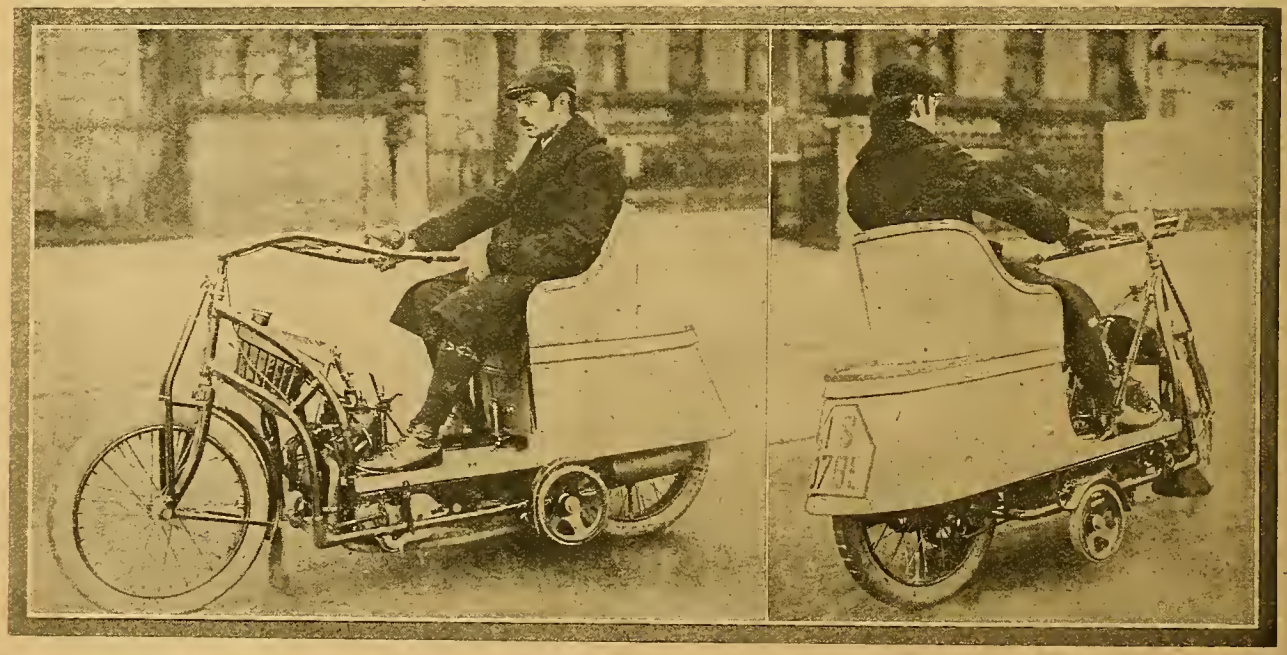
Free engines are quickly gaining popularity in U.S.A. Already it is stated that eleven motor cycle manufacturers have decided to fit a free engine pulley to their 1910 models, and it is known that other manufacturers are experimenting with devices of this nature.

Single and Twin-cylinder Machines in Saturday's Trial.

Of the seventy-four motor cycles entered for the Quarterly Trial on Saturday, thirty-five of the bicycles and the one tricycle were propelled by single-cylinder engines, the other thirty having twin-cylinders. The eight passenger motor cycles were represented by four single and four twin-cylinder machines.

Motor Pace Revival.

The possibility of the N.C.U. recognising and allowing motor pacing in this country seems to be very probable, and there is no doubt that properly regulated this class of racing is very popular with the sporting public, who must be tired of seeing the usual handicaps week after week. It will be remembered that when a good programme, including motor racing and motor pacing, was put on at Canning Town there was always a crowd of ten to fifteen thousand spectators to follow this interesting and exciting form of sport. At the recent meeting of the National Cyclists' Union the thin end of the wedge was introduced by a resolution, which was carried, that in any motor-paced races held in this country the roller must be at least twenty inches behind the back wheel on tracks like Canning Town and the Stadium, etc., and still further back on tracks where the banking is inferior.



The above peculiar design of motor cycle has recently been undergoing tests on the Motmannschen Track, Potsdam. On each side there is an auxiliary rubber-tyred wheel which can be raised or lowered in order to add to the stability of the machine when going slowly or at rest on the lines of the Clissold anti-skid device exhibited at the Stanley Show. The twin-cylinder engine is water-cooled, and the drive is by chain through a change speed gear.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

"Clean" Counties.

Will you kindly inform me of the nearest county to Cambridgeshire that has not done the "donkey work" of motor trapping, as there are several members of our club who wish to take out their licences in such a county?—H.S.W. (Cambridgeshire M.C.C.)

We should recommend you and your fellow members to renew licences in Bedfordshire, as, so far as we are aware, there have been no police traps in that shire up to the present.

Rubber and Canvas v. Leather Belts.

For real flexibility, which is better, a rubber and canvas or a leather belt? I want the most suitable belt for my 2½ h.p. Matchless, which has rather small pulleys. A ¾in. rubber went to bits in two or three hundred miles. I am thinking of getting a Watawata. I understand that leather belts require a lot of attention, and are much harder on the pulleys than rubber belts. Is this so?—C. S. J.

You might well try the Watawata belt mentioned in your query. It would probably be the most suitable for your purpose. We have personally proved it to be especially good in cases where a small pulley is used. A leather belt certainly does need more attention than a rubber belt to keep it in first-class order, but, on the other hand, it will usually outlast the rubber and canvas variety.

Taking a Passenger on the Carrier.

Am I injuring my 1909 3½ h.p. machine by sometimes taking a passenger behind on the carrier? My weight, including top coat and suit case with spares on carrier, is fifteen stones, my occasional passenger, say, from ten to twelve stones? The machine flies up hills round Edinburgh in a marvellous way, but my friends say I ought to be summoned for cruelty to motor bicycles. But am I injuring the machine in any way?—R.W.

We do not think you are doing any particular harm by taking a passenger occasionally on the carrier, although you are imposing strains which the machine was not designed to withstand. It is not advisable to make a practice of carrying an extra passenger, but if you particularly desire to do so, we should recommend you to consult the makers of your machine as to fitting stronger wheel spindles.

A Route from the Midlands.

Please tell me the best route for motor cycle and sidecar from Worcester to Tunbridge Wells. I suppose that I shall not encounter any hills too severe for a 5½ h.p. twin with two-speed gear?—A.J.H.T.

Your best route would be as follows: Worcester, Evesham, Moreton-in-the-Marsh, Chipping Norton, Woodstock, Oxford, Henley, Windsor, Chertsey, Guildford, Cranleigh, Horsham, Crawley, Three Bridges, East Grinstead, and Tunbridge Wells. There are no hills on the route which a 5½ h.p. two-speed twin should not easily ascend.

Single and Twin Cylinders Compared.

Would the Douglas lightweight suit me? My weight is 9 stones, and I want a machine which would take me and a push bicycle coupled. Of course, I should expect to have to pedal a little up steep hills, and there are several in this neighbourhood (Surrey). Also is the cost of running a twin-cylinder machine more than a single? What are the advantages of a twin over a single?—H. P.

We should say that the machine in question would suit you admirably. Of course, there would not be much power in reserve when taking a passenger, but you would get along all right in fairly level country. The machine would cost no more to run than a single-cylinder of equal power. The advantages of a twin are smoother running and absence of vibration, and also quicker acceleration.

Skidding of Rear Wheel.

In attempting to start my twin-cylinder Kerry motor cycle the back wheel pulls up on compression, and will often do so after firing three or four times regularly. I believe the cylinders have been rebored. Compression is good. Do you think it is too good? Carburetter will take no extra air at all. I do not think it is a case of misfiring, but it simply skids the back wheel. It is just the same whether ignition be advanced or retarded for starting. The engine will not run at slow speeds.—H.F.P.

The trouble is most likely due to the adjustment of the carburetter. Evidently too small a jet is fitted. The fact that the machine starts with great difficulty and admits no extra air seems to indicate that this is what is the matter. The compression cannot be too good. The symptoms you describe would be due to pre-ignition, probably from starting with the spark too far advanced, thus causing a back fire. As a last resource we should suspect that the timing had shifted itself.

Notice of Change of Ownership.

Is a person (not a dealer in cycles or cars) required by law on selling his motor cycle to give notice to the authority in the town or county in which it was registered, and if so, is he under a penalty for not doing so? Or is it the duty of the buyer only to have those numbers transferred to his name or re-register altogether?—W.J.P.

According to the Act, either the old or the new owner may notify the authorities of the change of ownership. It is generally understood, however, that it is the new owner's duty to notify the authorities of the change of ownership, and to ask for the numbers to be transferred to his name, the registration being of the particular machine and not of the owner. In case of doubt, it is advisable for the seller to advise the authorities that he is no longer the owner of the motor cycle bearing the particular numbers.

Sidecar Attachments.

I am purchasing a 1910 Triumph fitted with their patent free engine. Would this pull a sidecar and passenger without undue strain to the machine and climb reasonable hills, geared at 5 to 1? Also what do you consider should be the maximum weight of passenger, my own weight being eleven stones? Your answer being "yes" to above, what do you consider the best type of sidecar?—J.H.

The machine in question should be suitable for sidecar work with a passenger not exceeding nine stones in weight, but it would be better still if you had a two-speed gear fitted, as frequently in touring you would encounter hills which could not be climbed with a single gear. Good sidecars suitable for your purpose are made by Messrs. W. Montgomery and Co., and Messrs. Mills and Fulford, both of Coventry, and Messrs. the Chater Lea Mfg. Co., Ltd., 116, Golden Lane, E.C. There is no best "type," but the rigid pattern seems to be the most generally favoured.

Examining a Second-hand Motor Bicycle.

I am thinking of buying a lightweight motor bicycle, and should be very much obliged if you could give me some information on the following points: (1.) In examining several second-hand machines offered for sale I have found the pulley rather loose. Is this usual, or does it show excessive wear? (2.) Would a 1¾ h.p. to 2 h.p. machine be capable of carrying me up all the hills on the London-Hastings and London-Portsmouth roads without pedal assistance, my weight being nine stones? (3.) Is it possible to get a reliable magneto machine of this description for about £16 or £18? (4.) How is it possible to tell if the bearings are worn on a motor bicycle?—J. L.

(1.) The looseness of the pulley seems to indicate that the bearing is worn. (2.) Yes, if in good condition a 2 h.p. lightweight would do what you require. (3.) You have stated a somewhat low figure. At this time of the year it is doubtful if you would obtain a low-powered magneto machine in really good order under £20 or so. (4.) Move the pulley up and down vertically. If there is play it is a sure indication that the bearing is worn. You can only tell if all the bearings in the engine are worn by removing the cylinder, although it is usually possible to get an idea by pedalling the engine round on the stand with the exhaust valve lifted. A rumbling or a faint knocking is a sure sign of worn bearings.

READERS' REPLIES.

The Effect of Fitting a New Piston.

In *The Motor Cycle* of January 10th I noticed a query respecting a 2¾ h.p. Humber engine (1904). Some time ago I possessed one of the same make, and had a dome top piston fitted with rings at top and bottom; this affected the lubrication on mine. On top of the crank case there was a projecting ring standing above the level of the baffle plate, and after sawing this off I gained perfect lubrication. The new piston was larger and decidedly heavier than the old one. I could climb practically anything I came across with a single gear of 6 to 1. If "F. A. C." cannot find any other remedy, I should advise him to try this, removing the above-mentioned ring, and to leave the piston alone. It worked admirably in my case.—D. F. AUSTIN.

Adjustable Pulleys and Tightening Belts.

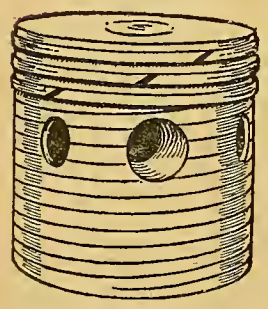
I have several times noticed correspondents advised in these columns to use the adjustable pulley for taking up slack in the belt. This is surely an extremely cumbersome way compared with the use of extra hooks in the belt fastener, for instance Stanley Webb's hooks. With these the shortening of the belt is literally the matter of a few seconds, besides doing away with the disadvantage of running on a higher gear than is wished for. By keeping an eye on the belt and shortening it at home when it shows signs of pulling through, and at the same time inserting a hook, belt troubles on the road can be practically eliminated. In my case pulling through never occurs.—FCH 24.

Loss of Power.

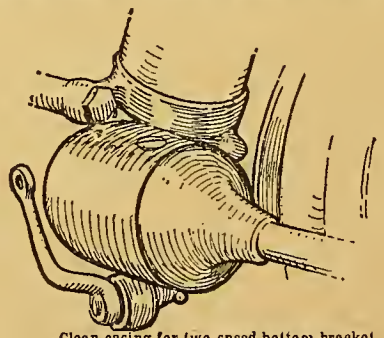
A similar trouble occurred to my machine two years ago. The writer "W.C.B." does not say if he has given attention to the silencer of his machine. The holes in some silencers are very minute, and easily clogged, especially if the engine be somewhat over-lubricated. If the silencer is an intricate one the trouble may be made much less frequent if some of the inner parts are removed; there is then practically no difference in the noise of the exhaust, and back pressure is not so great. The best way to clean a silencer is to take it to pieces, and to heat each part red hot in a coke stove or in the flame of a powerful blast lamp. After the parts have cooled an easy brushing in cold water will clean it as new.—A.E.M.

SOME FEATURES OF AMERICAN MOTOR CYCLE DESIGN.

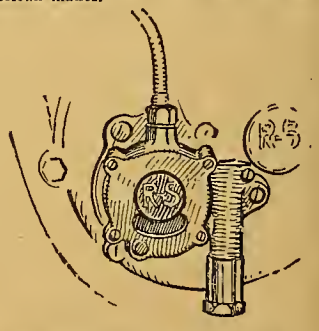
Motor cycles exhibited at the recent New York Show were of much improved design. The Indian (the features of which are already well known to our readers) is still an easy winner, but we illustrate some of the best points of other American makes.



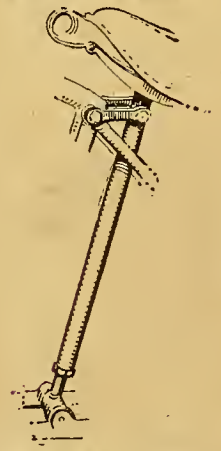
Lubricating channels and holes in Curtiss-marve. piston.



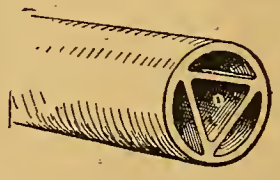
Clean casing for two-speed bottom bracket gear on four-cylinder Pierce.



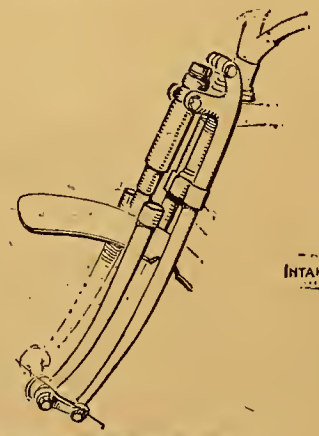
R.S. mechanical oiler operated by the exhaust cam.



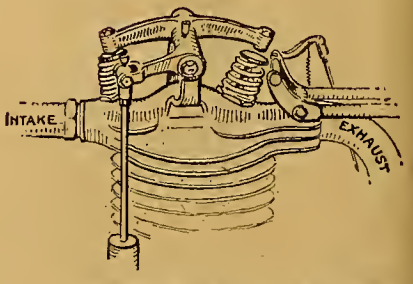
Neat type of spring seat pillar on the Greyhound. Maximum spring compression, 1½in.



Triangular reinforcement of Emblem frame tube.



Semi-pneumatic spring fork on the Greyhound. Ball bearing rockers.



Overhead valves of the new Curtiss engine, mechanically operated by one rod.

[*From "Motor Cycling" of Chicago, U.S.A.*]

The 1910 End to End Trials Route

FIRST AND LAST HOUSE, LAND'S END.

QUITE recently we published in *The Motor Cycle* a map of the amended Land's End to John-o'-Groat's route, together with a few brief notes on the alterations decided upon by the A.C.U. committee. It may appear to some of our readers that it is a pity to depart from the classical route followed by record breakers on bicycles and motor bicycles from the time of the Hon. Ion Keith-Falconer to Mr. Ivan B. Hart Davies, but it must be remembered that the object of the Land's End to John-o'-Groat's Six Days' Trial is not to encourage record breaking, but to prove the reliability of the motor cycle by taking the machines over the longest possible route from one end of the country to the other, and at the same time by choosing a severe course to test the machines to the utmost.

Start from Penzance.

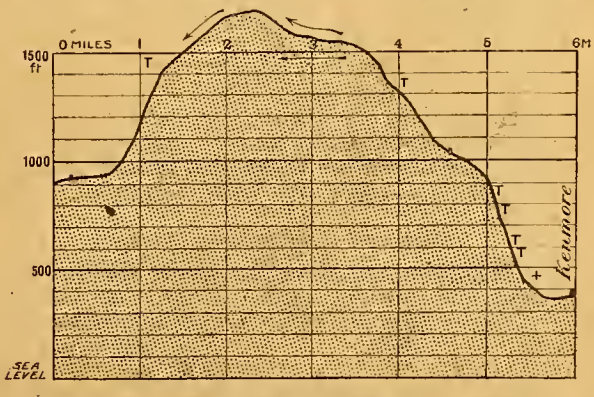
On the Monday morning the trial starts from Penzance, whence the competitors proceed to the Land's End Hotel, and here they are assembled to start together on their long journey north. Taunton is reached the first night after a somewhat difficult day's run. Next follows a long journey on the Tuesday morning from Taunton to Warrington. In the early part of the day, as far as Bristol, the road is hilly, but after that the run is comparatively easy and over good roads to Kidderminster, where, after leaving the town, there are a couple of stiff ascents, which usually attract a number of spectators from various parts of the kingdom. Once these hills are climbed all is plain sailing, and over magnificent roads the busy town of Warrington is reached. Unfortunately, here the accommodation is somewhat limited, but there is some consolation in knowing that it is one of the only two places on the route where the men may experience trouble in securing suitable accommodation.

The early part of Wednesday morning is occupied in threading through Wigan, Preston, Lancaster, and suchlike thickly populated towns with badly paved streets, relieved, fortunately, at intervals by stretches of good road which connect them.

The Climb over Shap Fell.

After Lancaster comes Kendal, and then there is the magnificent climb over Shap Fell, not very formidable in these days to the modern up-to-date motor bicycle. From Penrith to Carlisle the road is magnificent, but, unfortunately, traps are rather prevalent in this part of the country. After Carlisle the border is crossed at Gretna Green, a tiny village of white-washed houses memorable for the famous blacksmith's shop where so many happy runaway couples were united in times gone by. So far the route has not been altered, but since Scotland is new country to many of the competitors, we propose to deal more fully with this portion of the route. From Gretna Green on through Ecclefechan (the first of the difficult Scotch names to pronounce) we pass through Lockerbie, and at Beattock leave the road for about one and a half miles, and enter the pretty Lowland town of Moffat, where the night is spent.

On the Thursday morning we leave Moffat by a side road, and again join the main road to Glasgow, climbing the beautifully graded and excellently made road over Beattock Summit, alongside of which the Caledonian Railway runs, up which snorting trains laboriously pant their way to the North. Not so the motor bicycles, which fly like things of life on their long journey. Beattock Summit is 1,028 feet above sea level, the highest altitude hitherto reached. The going is quite good all the way from Abington Inn to Lanark, but from Lanark to a point just short of Airdrie we pass through the manufacturing district lying twixt Glasgow and Edinburgh. Once this is over there is nothing but the great and glorious country, free of big towns, paved roads, and greasy tramlines,



Contour section of Amu'ree. End-to-end competitors will climb (?) the northern side from Kenmore.

From the Contour Road Book, printed by arrangement with Messrs Gall & Inglis.

A23

The 1910 End-to-end Trials Route.—

extending right up to the most northern point of Great Britain.

Nearing Stirling, we pass the Field of Bannockburn, and eventually reach the town, where lunch is taken. Stirling, replete with historical memories of Robert Bruce, may justly be called "the gate of the Highlands." After lunch we enter almost directly into this glorious district. Passing through Thornhill, we traverse an easy road to Callander, immediately after which we enter the Pass of Leny. The road then winds along the first loch to be encountered, the pretty Loch Lubnaig, from which is afforded a fine view of the precipitous heights of Ben Ledi. Next we pass through Strathyre and Kingshouse, familiar to the readers of Scott's "Lady of the Lake," while beyond, if the day is fine, there is an excellent view of Ben More and Ben Stobinian. Next we come to the village of Lochearnhead at the head of Loch Earn, and then climb Glen Ogle, a splendidly engineered road, for which the famous General Wade is responsible. The surface is good, the gradients are excellent, and neither wind nor snow seem to leave lasting imprints upon it. Of it it is said, "Had you seen this road before it was made, you would lift up your hands and bless General Wade." The famous general seems to have been a splendid road-maker. His is the famous classical road leading from Pitlochry to Dunkeld and over the Grampians to Inverness, part of which is to be traversed on the morrow.

Callander from the bridge, showing Ben Ledi in the background.

A Beautiful Stretch of Road.

Leaving Glen Ogle, we descend the valley, turn to the right, and, just missing the village of Killin, skirt Loch Tay. Just before striking the loch we reach the Fall of Dochart. On an island under the bridge over the falls is the burial ground of the MacNabs—a powerful clan, at one time owners of the whole countryside. The next section of road to be covered is particularly beautiful, passing as it does along the picturesque shores of the loch. The road here has a fair surface, but it is very undulating, though none of the gradients seem to be much worse than 1 in 12. Kenmore, which we skirt, lies at the head of Loch Tay, and is a model Highland village. Were it possible to look back, a magnificent view would unfold itself. On the right rises the rugged slopes of Ben Lawers, and at the end of the loch we could see the bold mountain peaks of Ben More and Ben Stobinian. On an islet lying close to the shores of the loch are the ruins of a priory. According to good authority, Sybylla, wife of Alexander I. of Scotland and daughter of Henry I. of England, is buried here.

Almost immediately after skirting Kenmore we turn sharp to the right, and here a precipitous hill meets the riders. Just behind where we turn is the entrance to the grounds of Taymouth Castle, the seat of the Marquis of Breadalbane. The road here is 350ft. above sea level, and in three and a half miles it ascends to over 1,700ft. According to Gall and Inglis's "Contour Road Book," we have now to traverse a precipitous gradient of between 1 in 7 and 1 in 8, with numerous corners, and, according to our authority, impracticable for general purposes. This does not, however, infer that the modern motor bicycle cannot make a clean ascent of it. It is just the hill one would strike off the beaten track in search of such scenery as is not vouchsafed to the ordinary tourist. Once on the summit the competitors will doubtless be glad to rest and gaze around them, when, if the day be fine, a striking view meets the eye. Behind lies Loch Tay, with Ben Lawers dominating the surrounding hills. To the left and right the bleak moorlands, and away to the far north rise the mountain peaks of Schiehallion and the rest of the Grampian Mountains. Having said good-bye to the timekeeper, we shortly descend a precipitous hill, which must be negotiated with the greatest possible care, for we are about to pass over the road up which the Edinburgh M.C.C. held its trials last year. Once round the

The 1910 End-to-end Trials Route.—

dangerous corner, our troubles are at an end, and, passing Amulree Hotel, we take the first turning to the left and ascend Glen Cochill, and proceed to Aberfeldy. Turning to the right and passing Grandtully Castle, we take the first turning on the left, and, crossing the River Tay, which is said to carry more water into the sea than any other river in Scotland, we come to Ballinluig just where the Tay and Tummel join forces. Here we join the old route to the North, and after a final spin of five miles reach Pitlochry, our stopping place for the night.

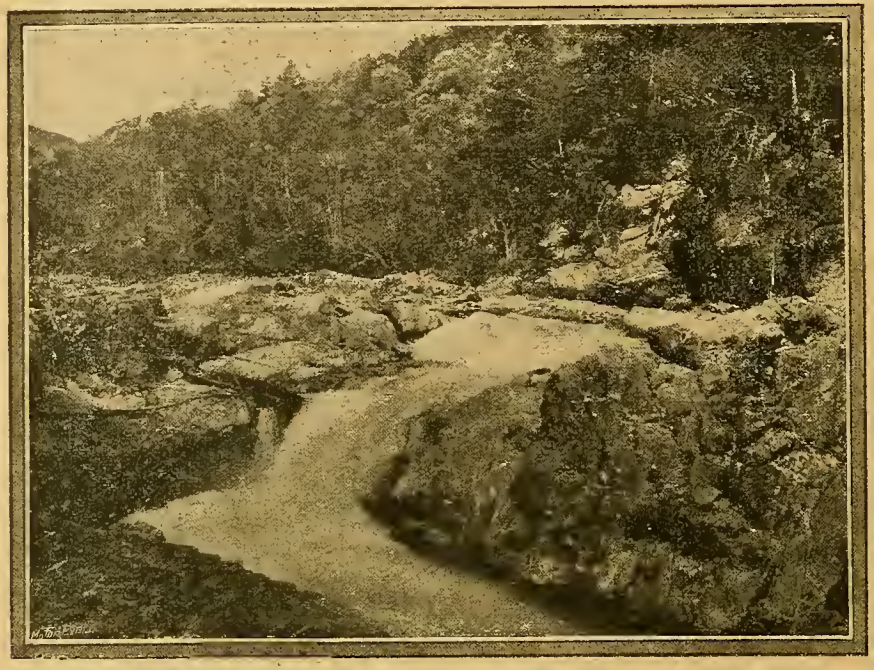
On Friday morning, leaving the famous Highland village of Pitlochry, we traverse the bumpy, tree-shaded road through the Killiecrankie Pass, and, traversing Blair Atholl, enter into the somewhat dreary country which leads over the Drummochter Pass. We pass the Falls of Bruar on the right, of which just a glimpse may be seen, and then the climb begins in earnest. After Struan Station we rapidly leave the tree line, and gradually ascend the last of General Wade's well-graded roads, which was made by him during the Highland Rebellion. All along the route the single line Highland Railway follows, and just past Dalnaspidal Station we reach the summit, 1,500ft. Just before leaving the station there is rather a pretty glimpse of Loch Garry on the left. We then rapidly descend, and, passing Loch Ericht Hotel, enter Dalwhinnie, and, still following the old route, continue our descent to Newtonmore. In 1906, when the trial was first organised, people spoke of Drummochter Pass with bated breath, but the modern machine fears little the long but rather rough ascent, the surface of which leaves much to be desired. At Newtonmore we turn sharp to the left and again enter new country, and there follows a very pretty run through a wooded valley and past Cluny Castle to Laggan, shortly after which we strike the shores of Loch Laggan—a pretty loch—alongside which the route winds. On the opposite side we have a fine view of Sir John Ramsey's Highland home, Ardverikie. Skirting the foot of Ben Alder, we have ten miles of rather dreary country to travel, and then Ben Nevis, the highest mountain in the British Isles, comes into sight, when, if the day be fine, it will be an imposing sight. It is not generally known that Ben Nevis possesses a small glacier, which is the only place in the British Isles where the snow never melts. At Spean Bridge we turn to the right, and after about three miles strike the shores of Loch Lochy, the first of the chain of lochs which form the Caledonian Canal.

Beautiful Loch Lubnaig, alongside which the competitors ride on the fourth day of the End-to-end Trial. The loch is situated between Callander and Killin.

From here onwards the scenery is delightful. The shores of the lochs are wooded, and above them rise the high mountains, while the going is not at all bad. At the end of the loch we turn to the left, and pass Loch Oich on the opposite side, crossing the River Garry as it comes tumbling over tremendous rocks, and through Glengarry, on a rugged headland called Creagan Fhithich (the war-cry of the MacDonalds of Glengarry), where stand the ruins of the castle, long the domain of the chiefs of the clan. Here Prince Charlie slept the night after Culloden, and a few days afterwards it was laid in ruins by the Duke of Cumberland. Seven and a half miles on we reach Fort Augustus, where lunch awaits the hungry competitors. The fort which gives its name to the town was erected

The 1910 End-to-end Trials Route.—

on the suppression of the Jacobites in 1715, and of this powerful fortress nothing is left save the dark, weed-clad walls, the military well, and the grass-grown moat. In 1867 it was sold to Lord Lovat, whose son presented it to the Benedictine Order of Monks for the erection of a monastery on the site.



Falls of the Tommel, near Pitlochry.

Leaving Fort Augustus, we skirt the shores of Loch Ness, and a very beautiful ride it is. On a promontory at the mouth of the Glen Urquhart stands the ruins of the ancient castle of that name, built in the twelfth century, and the scene of a fierce conflict between Edward I. and the Scots in 1303. We now turn inland, and, crossing the River Enrick, which tumbles beneath the bridges, we turn sharp to the left, leave the loch, and ascend Glen Urquhart, continuing along until Invercannich is reached, where the scenery is magnificent. Here we turn right, and, descending Strathglass, pass just south of Beauly, along the shores of Beauly Firth, traversing thirteen miles of the route which we cover the next day. At the end of the Firth we reach Inverness.

The Sixth and Last Day's Run.

After a comfortable night at Inverness, the men will start round the beautiful Beauly Firth, with a fine view of Ben Wyvis in the distance. After about five or six miles the road strikes inland under the railway bridge. Turning to the right, the men ride due north through Beauly to Dingwall. Cromarty Firth is then struck, and there is a fine run from here over a good road along its shores to Alness. Hence there is a road across the hills, but it would have cut the course too short to have adopted it. However, some of the official cars may care to take this short cut to avoid Invergordon. Approaching the latter town, there is a fine view of the Firth, where the water is deep and the outlet is narrow—a splendid anchorage for the Home Fleet. Passing through Tain, we again strike the water—this time Dornoch Firth—and after about three miles a beautiful view of the Firth is obtained. Blue water, wooded shores, and distant mountains lend enchantment to the scene. At the end of the Firth we turn to the right over Bonar Bridge and sharp to the right again, climbing steadily upwards, with a fine view of the Firth on the right through the trees. Shortly after Clashmore Inn we turn to the right, and reach Dornoch, on the coast, for lunch. Leaving Dornoch, we turn to the right at the station, and reach Golspie, immediately after which we pass Dunrobin Castle, the seat of the Duke of Sutherland, president of the R.A.C. On through Brora and Helmsdale to the foot of the Ord, where we rise from 61ft. to 631ft. above sea level.

Descending from the summit down a dangerous hill, we drop into the picturesque village of Berriedale, turn round a sharp corner to the right, and ascend the famous hill, where we have to negotiate a hairpin bend half-way up. From this bend there is a glorious view of the Valley of Berriedale Water, dominated by a fine mountain peak and of the turrets of Langwell House (the Duke of Portland's shooting lodge) nestling in the valley. From here the road is good, and there is not much of interest until Wick is reached. Riding straight through Wick and turning to the left at the end of the town, we enter upon the last seventeen miles of our journey. Passing Keiss, we bear to the right over a moorland road, ascend a short hill, and lo! before us lies Pentland Firth, with the blue sea studded with the picturesque Orkney Islands, while on the edge of the water lies John-o'-Groat's house, our destination, 998 miles from Land's End by the route we have come.

Berriedale, the final test of hill-climbing before John-o'-Groat's House is reached.

From the Contour Road Book, printed by arrangement with Messrs. Gall & Inglis

Altogether the Land's End to John-o'-Groat's route this year offers increased attractions, and it is to be sincerely hoped that it will be well supported.

In compiling this article we have to acknowledge considerable assistance derived from a souvenir of the Scottish Reliability Trials, 1909, by J. Inglis Ker, published by *The Motor World*.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Back-rests for Motor Cyclists.

[4532.]—Some years ago on my old F.D. Werner I noticed the stiffness complained of after seventy or eighty miles, and put it down to the horizontal vibration caused by the engine impulses, which is not provided for in the usual form of saddle spring. On my next machine the saddle was dispensed with and a seat substituted which was insulated from vibration in any direction. On this I have on many occasions made all day journeys, but have never experienced the slightest stiffness since using it.

T. FREDERICK HUNT.

Suggested Improvements to Speedometers.

[4533.]—The speed limit at which motors may travel on the King's highway has been fixed by law at 20 m.p.h., yet motor speedometers are made to register up to 60 m.p.h. As the higher indications of speed are useless to the average motorist as well as to the strictly law-abiding traveller, may I suggest the desirability of placing speedometers on the market showing a range of speed, say, from 3 to 30 m.p.h., that range to occupy the same space now filled by the zero to 60 m.p.h. indicator. The smaller units of speed would therefore be more easily ascertained. One of the speedometers now on the market only indicates from 10 m.p.h.

May I suggest that the best type of indicator *i.e.*, that on which the changes of speed are most easily read, is that in which the centre from which the indicating needle works is not coincident with the centre of the dial, but is at the base of the same.

(Rev.) JOHN HODGKIN.

A Cure for Puncture Troubles.

[4534.]—In reference to Mr. Barnes's recent remark about the puncture-curing compound Miraculum, I may say that I have tried it, and have not been altogether satisfied with it. It seems to me that on a push bicycle, where one's chief enemies are thorns, and similar small things, it would fulfil its purpose very well, and would easily seal up the holes made. But on a motor cycle the matter is different, as one usually gets a much larger puncture than on a push cycle, and it stands to reason that a sort of thick paste couldn't properly seal up a fairly large hole. Also I find that when one is putting on a patch on the roadside the paste oozes out and becomes a terrible nuisance. Also when patch is on it has a tendency to lift it. The best way to avoid the puncture fiend is to have a pair of really good heavy tyres.

PETROLIA.

The 1910 End-to-end Trials Route.

[4535.]—I think it a splendid idea to vary the End-to-end route, as announced in *The Motor Cycle*. Having traversed the exact route last summer from Stirling with motor cycle and sidecar, *viâ* Callander, Killin, Aberfeldy, on to Pitlochry, I found it much more difficult than the old route *viâ* Dunkeld. The road from Stirling has a very bad surface as far as Lochearnhead, and would undoubtedly find out any weak spots in the machines. We found this road much more difficult to traverse than the road onwards over the Drummochter Pass to Newtonmore.

It is a pity the run should take place so early. The latter end of July or beginning of August, in my opinion, would be far better, August being generally recognised as the holiday month. The writer for one could not manage it so early, and would suggest a vote being taken as to which of the dates (the beginning of July, latter end of July, or beginning of August) would be most suitable for the competitors.

BH 619.

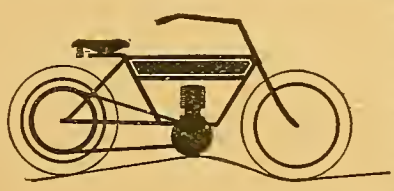
Belts on Lightweights.

[4536.]—Mr. Harry Sharpe in his recent letter states that "weather has made no difference" in his experience of the Motosacoche lightweight. I should be glad if Mr. Sharpe would inform us if the round twisted belt slips when a deluge of an English or Irish shower comes on. Does not the belt refuse to grip and carry him and machine up hills?

E. McQUADE.

Motor Cycle Conditions in the Australian Bush.

[4537.]—I am a constant and interested reader of *The Motor Cycle*, and have been a rider until lately, but my machine is at present "hung up" with a damaged crankcase. Manufacturers seem to strive to make their machines with engines as low as possible—the very feature which unsuits most motor cycles for country use in Australia. Some manufacturers have absolutely declined to fit their engines more than 5in. off the ground to my order, therefore my machine is damaged by contact with the ground. In uneven places if we knew the engine would clear the ground we could ride over the obstructions at eight miles an hour or more, but, being in doubt, we slow right up or dismount, often to find the machine would have just cleared. In some places where the obstruction looks easily surmountable the engine hits. I speak of little gullies or ruts (drains), or perhaps when descending a country hill there are a series of ledges (see sketch).



Now, on our country roads places such as these (maybe a drain, or, as we call them, "gutters," or a ledge of rock) occur on an average every hundred yards. In a day's run, the low-engined machine, even if high-powered, would be completely lost by a light strong one with engine well off the ground. In excessive dust the belt would be smothered, and would not grip at all. The light one could often leave the dusty road, and, in any case, would not be affected. In stormy weather, when a creek may be running knee deep or less, the heavy low-engined machine would have to remain on the bank a day or two till the water subsided, or else be wheeled through—no easy task. After immersion, the whole engine would have to be taken to pieces to get the water out, and if the magneto were fitted low down it would be damaged. The small machine could be carried across with less exertion.

Thanks to the A.C.U. Six Days' Trials, we of the "never, never country" who have not the chance of seeing a Stanley Show and choosing a machine, can find out that small-powered machines are to be had such as I describe. For instance, the Moto-Rêve came through without loss of marks for "reliability." (See *The Motor Cycle* July 14th and August 11th, 1909.) This is the machine whose performances I have been watching and find to answer my requirements. I hope soon to put it to a test in this back country.

I am fully aware that I am writing purely from a bushman's point of view, and am aware that the type of machine I require is in a minority, but surely a percentage of customers appreciate it when we consider South Africa, Australia, and similar places.

Adavale, Q., Australia. A. D. SKINNER.

Licences for Motor Cycles.

[4538.]—Postmaster's recommendation to us to renew our licences in Staffordshire, as it is a county favourable to motor cyclists, is a mistake. Prosecutions have been far too frequent in this district (Stoke). The police hitherto have proved most unmerciful, and as a silent protest I took out my licence in Carlisle, where the police have proved merciful and considerate in the use of the power entrusted to them.

TRENTHAM.

[4539.]—I was pleased to note in your paper of January 17th motorists' consideration *re* taking out licences in counties where fair play is shown by the chief constables. I am taking my licence out this year in Staffordshire, although residing at Muswell Hill.

I should like to suggest that motorists bar Barmouth, not only in licences, but in every other respect. Last year, whilst riding from Harlech to London, as I neared Barmouth an officious member of the force suddenly appeared with a stop-watch, and declared I was travelling to the danger of the public, which, by the way, consisted of himself, and he was hiding behind a cottage wall until I appeared. I was travelling at the time on a tricar at fifteen miles an hour, which I was able to prove by the distance I had travelled since I last stopped. In due course I received a summons, and after an appeal against this gross injustice I had to pay £5 4s. 6d., and my licence was endorsed. A Welshman, in course of conversation, told me that when the roads wanted repairing this was the practice the authorities indulged in. I sent for a Barmouth paper, and was interested to find that five other motorists had been fleeced on the same afternoon.

G. P. HOWE.

Cost of Petrol in Ceylon.

[4540.]—With reference to letter from Mr. Harold North *re* above in a recent issue, will he please say where in Colombo petrol can be bought at under Rs. 1.75? I cannot get it under 1.75. I told the managers of Walker's garage of Mr. North's letter, and they assured me that he paid them Rs. 1.75 per gallon, and that the retail price is fixed at that by Forsyth's, the suppliers.

I am just here for a month with my motor cycle, but hope to have a fortnight here in April, so shall be glad to know where to get cheaper petrol. Colombo is the dearest port in Asia for petrol. The following are the prices I have paid: Bombay 1s. 6d., Calcutta 1s. 6d., Rangoon 1s. 2d., Madras 1s. 6d., Penang 1s. 9d., Singapore 1s. 4½d., Bangkok, Siam 1s. 6½d., Hong Kong 1s. 6d., Shanghai 1s. 1½d., Tientsin 1s. 8½d., and Tokio 1s. 9d. So you see that Colombo at 2s. 4d., even with the rebate of 4d. per gallon (which a non-resident cannot get), is much too high. Then the toll bars every ten miles or so in Ceylon run away with a lot of money. Repairs I know nothing about, as I have not had to have any done here, thank goodness.

Colombo. LEWIS PECK.

Increase of Speed on Partially Raising the Exhaust Valve.

[4541.]—I notice in letter 4506 a reference to the increased speed of petrol engines on slightly raising the exhaust valve. In my experience this only takes place when running slowly with the throttle nearly closed. It is obvious that the action of the throttle is to increase the vacuum in the inlet pipe on suction stroke, so attenuating the charge and reducing the compression. Therefore I do not consider that partial compression relief is likely to provide the solution of this phenomenon, even supposing that a loss of energy on both compression and firing strokes could possibly increase speed.

To my mind, the only feasible suggestion yet put forward was one published in *The Motor Cycle* some time ago, namely, that the pressure of one's fingers on the lever reduced the thrust of exhaust valve springs to a suitable value for the low speed of engine, so reducing the work necessary to lift the valve, and increasing the speed of the engine.

I think few people realise the resistance of the usual type of valve gear with a strong spring and pressure on top of valve. Moreover, the cam is so cut that hardly any of this work is returned when valve closes. The only necessity for a strong spring is to ensure rapid and accurate closing at high speed, so that when a pressure is put on hand lever at slow speeds the valve is easier lifted, the elasticity of the fingers enabling the pressure to follow up valve when it is first started by the cam, which is the period when greatest resistance occurs, due to slope of cam and pressure on valve head. Yet the valve is seated accurately and quickly enough for the slow speed of engine.

I must apologise for the length of this letter, but the subject is one of great interest to me, and I should like to see it thoroughly threshed out. Best wishes for your excellent paper.

J. R. B. KENNEDY.

P.S.—If the above explanation is right, the Indians should be singularly free from this phenomenon; perhaps Mr. Wells will tell us his experience.

Bore-stroke Ratio and Efficiency.

[4542.]—I have read with interest Mr. A. A. Scott's article on "Bore-stroke Ratio and Efficiency" in the last issue, and cordially agree with most of his conclusions, but I think he does not make quite enough of the loss of power due to exposed surface in the combustion chamber. It is not usually remembered that this surface acts detrimentally in two ways—firstly, during the power stroke, as explained by Mr. Scott; and also during the induction stroke, heat

A reader (Mr. C. H. Darby) just returned [illegible], enjoying the beauties of an English winter scene.

being then given to the gas at the time when it is of the greatest importance to keep it as cool as possible.

Of course, it is impossible to make an accurate quantitative calculation of the transfers of heat backward and forward between the cylinder walls and the working fluid, but my own impression, derived from practical experience, is that most of the loss of power caused by overheating is due to the heating of the charge during the induction stroke, as undoubtedly the power begins to fall off before the cylinder is hot enough to cause pre-ignition.

I am quite convinced that all air-cooled engines run with the combustion chamber much too hot for the best results, and that therefore a water-cooled head is a thing greatly to be desired in motor cycle engines, provided it gives no trouble.

From the above I am led to the conclusion that the overhead valve engine should be more efficient than the valve chest type. However, the latter is so greatly superior in reliability and general convenience that it quite rightly is in a great majority to-day.

C. A. ST. GEORGE MOORE.

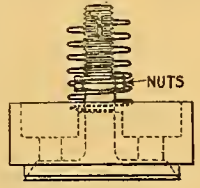
Ease of Starting.

[4543.]—With reference to Mr. H. Allen's letter [No. 20], in the last issue, may we draw this gentleman's attention to the Motosacoche, which is started in the way he wishes, i.e., by pedalling as a push cycle. It may interest this gentleman to know that the undersigned has never yet run alongside a Motosacoche and jumped on, as he does not know how to perform this trick.

MOTOSACOCHE, LTD.,
O. L. DE LISSA.

An Inlet Valve Tip.

[4544.]—I have a tip which may be useful to some readers who are troubled with constant breaking of automatic inlet valve cotters. I have found it to be a great advantage to have the stem of the inlet valve screwed with a fine thread, and fit two nuts locked together to give the correct distance for the valve to open. The old cotter pin hole is used for the threading through end of spring.



Readers will find that the nuts take up all the jar of the valve opening, and save cotters breaking. A. J. K.

Lightweights v. Heavyweights.

[4545.]—I notice in the issue of the 10th inst. that Mr. de Lissa has replied to Mr. W. L. T. Rhys's letter in answer to mine of a previous date. I did not trouble to reply to the latter correspondent, as I was quite convinced that he misunderstood the drift of my argument.

Naturally, I did not mean to convey that a 1¼ h.p. could travel faster than a 3½ h.p., or even as fast, but I still maintain that my 1¼ h.p. Motosacoche will climb Main Porth Hill—a gradient of 1 in 7 in one place a quarter of a mile in length, and which lies between my house and Falmouth—by the aid of some pedalling, which no 3½ h.p. machine has yet got up without very severe muscular effort on the part of the rider.

The reason, to my mind, is obvious. My Motosacoche weighs under 90 lbs., and the exertion of pedalling it, even on a very severe gradient, is not very great; while with a heavy 3½ h.p., weighing 175 lbs., and possibly more, in order to get round the corner, halfway up one must slow down, and then it is necessary to commence to pedal. The machine probably will not pick up at once; hence with the extra weight the muscular effort is necessarily very severe. If the machine does get to the top the rider must be an exceptionally powerful man.

No motor cyclist except myself uses this road, to my knowledge, on account of the severe gradients, and the fact that there is an alternative, though longer, route. I have tried this hill on two separate 3½ h.p. machines, and have never succeeded in getting to the top on either. With my Motosacoche I habitually use this road.

G. E. CASE-MORRIS.

Water Cooling on Motor Bicycle Engines.

[4546.]—Referring to the articles by "Ailette" and "Rotator," it may be interesting to readers to hear that I have been regularly using one of "Green's" patent water-jacketed engines, to which reference was made by "Ailette," for the past three years with unvarying success. The bore and stroke are 80 × 80 mm.

Whatever the final verdict may be as to the merits of water-cooling in comparison with air-cooling for engines of smaller sizes, there can be no question in my mind as to the very great advantages of the former in all cases where power is desired. My engine ran sixteen months without removing the valves, and then I found them in such an excellent condition as not to require any attention whatever. I have only once had them out since to grind after three years' running, and they are still gas-tight, but I am thinking of renewing them soon owing to the cotter holes being a little worn. I am still using the original sparking plug.

Overheating is unknown, and generally I find the engine requires much less attention than I was obliged to bestow on my air-cooled machines. I have had four since I first took up motor cycling in 1902. It is most economical in oil and fuel consumption, whilst the power is maintained under all conditions of load in a manner impossible in any air-cooled machine.

I have only quite recently removed the cylinder for the first time, after having run about 12,000 miles, when I found it, and the piston, very clean indeed, considering the distance run, and no appreciable wear.

Contrary to what many may suppose, I am never troubled with the water boiling, although I frequently take long spins in very hilly country with a sidecar attachment containing my wife and child, and the way the machine gets along with its load is an eye-opener to all those who see it. The water carried is about three pints, which needs replenishing at long intervals only, sometimes of several weeks.

Excepting for the three pints of water my machine is very little heavier than an ordinary one. HO 2.

SUMMARY OF CORRESPONDENCE.

Mr. A. C. Davison, 12a, Pleasant Row, Camden Town, N.W., is anxious to communicate with Mr. Joseph Adams, who wrote from Staffordshire, but who has apparently given his address incorrectly, as the reply sent to him has been returned marked "Not known."

Reverting to "Ixion's" comments in the last issue in regard to silencers in the T.T. Race, W. H. Wells writes: "'Ixion' suggests that it would be a good idea to make each entrant in the T.T. Race send in the silencer he proposed to use a month before the race, so that they could be tested and faked to make them uniform. 'Ixion' also suggests: 'It would be interesting if some fully qualified technical expert would take a standard silencer off some well-known machine, and see what percentage of efficiency he could obtain by removing its entrails and drilling out its end plates.' I wonder if 'Ixion' knows that the silencer as fitted to the Indian motor cycle consists of simply a round sheet iron box with pressed steel ends. In one end the pipes from the engine enter; at the other end a long pipe, extending out past the rear wheel, projects. This device is acknowledged by everyone who witnessed the reliability trials or the T.T. race last year to be exceedingly silent, yet evidently there is no back pressure. The whole secrecy of its efficiency in every way lies in the fact that there is a large chamber for the gases to expand in, and then a long pipe to carry the wasted forces out into the open air. I would, for the good of the cause in general, be pleased to see other makers of motor cycles copy this most efficient and simple form of silencing a motor cycle engine."

EXPERIENCES WANTED.

QUERISTS MUST SEND STAMPS FOR FORWARDING REPLIES TO QUERIES UNDER THIS HEADING.

"F. W. M." (Gillingham) desires readers' experiences with lightweight motor bicycles, especially as to reliability, comfort in riding, hill-climbing with a fourteen-stone rider, cost and frequency of repairs, and use in traffic.

D. S. Rothbury would like readers' experiences of the following 1910 models: Enfield, Hobart Bird, F.N. (2¼ h.p. gear-driven), and Moto-Rêve (2 h.p. chain-driven), particularly with regard to silence, flexibility, hill-climbing, and ease of mounting and starting.

CATALOGUES RECEIVED.

N.F. high tension magnetos are listed in a *brochure* to hand from S. Wolf and Co., 138, Southwark Street, Blackfriars Bridge, S.E. All types of magnetos are sold suitable for the various patterns of engines in use. The main features are simplicity and light weight.

Ariel motor bicycles are fully described and illustrated in a useful catalogue just issued by Components, Ltd., Bournbrook, Birmingham. Prospective purchasers should apply for a copy, as apart from the lucid descriptions of the Ariel motor bicycles and their appurtenances, space is devoted to many useful wrinkles.

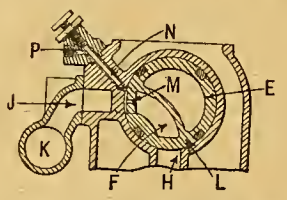
The 1910 Triumph motor cycle booklet is splendidly got up, and is profusely illustrated. First the bicycle and its component parts are described in detail and the advantages explained, and towards the end of the book many illustrations from the pages of *The Motor Cycle* depict the triumphant Triumph in last year's competitions. Four pages of hints on the care and management of motor cycles should prove most useful to novices. Copies of the booklet can be obtained on application to the Triumph Cycle Co., Ltd., Coventry.

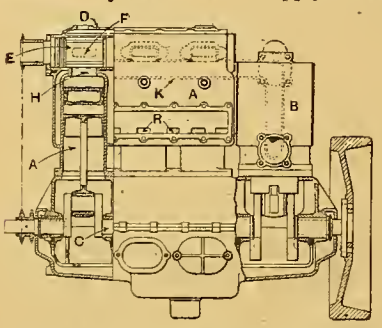
RECENT PATENTS.

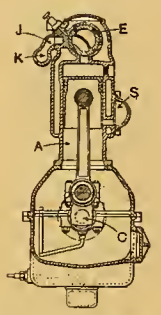
By ERIC W. WALFORD, F.C.I.P.A.

A Two-stroke Rotary Valve Engine.

The construction illustrated has three working cylinders A A A, and a pump cylinder B, all the pistons being connected to one crankshaft C. At the upper end of the working cylinders A is formed a casing D, in which rotates a valve E, driven by chain gearing at the same rate of revolution as the crankshaft C. The rotary valve E is provided with a port F for each cylinder, which, at the right time and for the correct period, puts the port H in the cylinder head into communication with a port J leading to the induction pipe K, to which air is supplied by the pump B. The port F has bridge pieces L, and in one of these is formed a slot M, the function of which is to take up a supply of fuel sufficient for one charge from the adjustable needle supply valve N, the inlet to which



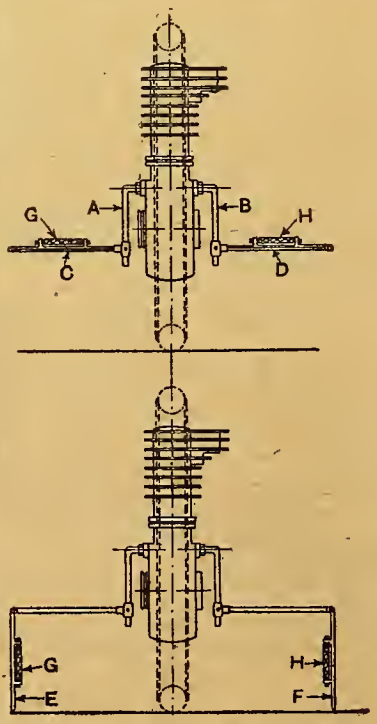




is shown at P. Each cylinder is provided with a number of exhaust ports R leading to a common exhaust passage S. In operation, as the crankshaft rotates, the rotary valve is rotated to bring the respective ports into register, the fuel being automatically taken up by the slot M in the bridge L as described. The pump B meanwhile supplies pure air through the inlet pipe, which in passing through the ports mixes with the fuel and forms the combustible charge. At the end of the down stroke the exhaust ports R are exposed, and the exhaust gas passes therethrough, being assisted by the fresh charge, which is timed to efficiently scavenge the cylinder, but not itself to pass into the exhaust passage.—A. G. Power, No. 26,729, 1908.

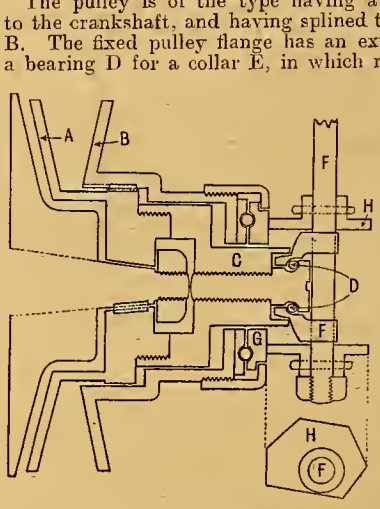
Combined Footrests and Stand.

Carried by the machine is a bar with two downwardly projecting portions A B. To these portions A B are adjustably secured rods C D, to the ends of which are pivoted further rods E F carrying pedals G H, which, in the position shown in the first figure, form the footrests proper. When it is desired to use the device as a stand, either or both of the bars E F are turned into the position shown in the second figure.—R. Hilton, No. 8,097, 1909.



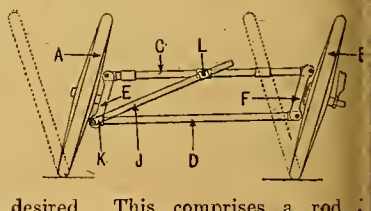
Variable Pulley Control.

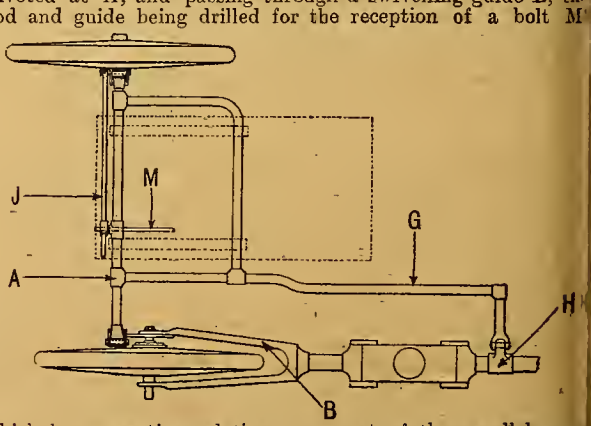
The pulley is of the type having a fixed flange A secured to the crankshaft, and having splined thereto a movable flange B. The fixed pulley flange has an extension C, which forms a bearing D for a collar E, in which rotates an operating rod F, under the control of the rider. The movable pulley flange B is provided with a thrust bearing G, against which acts a pair of cams H fixed to the operating rod F. The cams H in the case illustrated have six faces corresponding to a free engine and five different gear positions. No springs are necessary, as the tension of the belt moves the loose pulley flange outwards to the furthest extent permitted by the cams H.—A. Gnosill, No. 363, 1909.



A Flexible Sidecarriage.

The sidecarriage A is connected to the cycle B by mechanism which, operating on the principle of a "parallel ruler," always maintains the sidecarriage seat approximately horizontal. The mechanism comprises four tubes C, D, E, F, arranged in the form of a parallelogram, and jointed at their ends to permit of the necessary movement. A tube G extends forwards, and is secured to the cycle frame by a universal joint H. An arrangement is provided to enable the parallelogram to be locked rigid when desired. This comprises a rod J pivoted at K, and passing through a swivelling guide L, the rod and guide being drilled for the reception of a bolt M





which by preventing relative movement of the parallelogram maintains the rigidity of the sidecarriage.—I. Appleby, No. 931, 1909.

NOTICE.

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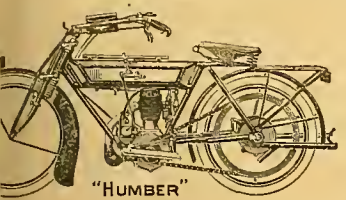
N'T PAY £48

ess machine. We offer Two-speed Models at the Roc Gear alone is worth £12 12s. See below for value.



"HUMBER"

eived from makers, a few

1909½ HUMBERS

. These you can hardly tell from 1910 models, l with improved pattern silencers, spring forks, ys, Roc licensed two-speed gear, H. B. control t ank, high tension magnetos, Dunlop tyres, oil rated by foot, stand and carri r, toolbag with ted to handle-bar. Fully guaranteed.

£42 10s., or exchange, or credit.

SPECIAL DISCOUNT FOR CASH.

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ew, fitted with latest pattern silencers, spring netos, pedalling gear, stand, carrier, toolbag, ber plates,

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ers wanted. Why buy second-hand machines, d new, up-to-date, fully guaranteed machines at these prices. Remember number is limited.

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e a few Brand New 3½ h.p. Models, fitted with h.-b. control, complete with tools, etc.

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SPECIAL HIGH-CLASS TRICAR.

REX LITETTE, twin-cylinder, water-cooled, s, magneto ignition, spring frame, coach built. ime was exhibited at Stanley Show in 1908 78 15s. It is very light. Our price **£39 10s.** or exchange considered.

TEVENS Tricar, fan-cooled, very light, **£12 12s.**

CASH, CREDIT, OR EXCHANGE.

in MINERVA, spring forks, 1908 model	£25 10
EX DE LUXE, magneto, fitted with car	£27 15
N., four-cylinder, magneto, spring forks	£16 10
X, colonial model, magneto ignition..	£12 12
ADRANT, 1909, Roc two-speed	£32 10
NERVA, magneto, French grey	£22 10
RNO, magneto, H.B. control, new....	£32 10
RNO, magneto, new, non-skid	£32 15
RNO, magneto, new, Palmer's	£33 10
UMBER, new, 1909 model	£39 10
EX, 1909 Tourist, spoiled only	£32 10
09 DOUGLAS, like new	£32 10
X, 1909 model, like new	£32 10
vin BROWN, 1908, magneto, fine engine	£23 10
r. magneto, spring frame, two speeds..	£24 10
IUMPH, 1909, nearly new	£35 0
IUMPH, 1908, good order	£30 0
JMBER, 1909, two speeds, non-skids ..	£37 10
NERVA, magneto, 2¼ tyres.....	£13 15
OYDS, vertical engine, 26in. wheels ..	£3 15
9 HUMBER, two speeds	£37 10
.U., magneto, 2¼in. tyres, long bars ..	£22 10
.U., magneto, 1908, smart	£17 10
X, 1908, magneto, h.b. control	£17 10
EX, 1909, nearly new	£32 0
X DE LUXE, Roc clutch, magneto ..	£25 10
IN MINERVA, magneto, spring forks	£22 10
IN REX, spring forks, low built	£16 10
X, spring forks, trembler coil	£10 10
X, 26in. wheels, M.O.V., h.b. control..	£3 15
ADRANT, 1908, magneto, M.O.V. ..	£25 10

r list of 200 machines. Cash buyers receive otations.

H.S WEEK'S SPICY BARGAIN.

UADRANT, in good running order, complete belt, accumulator, number-plates, etc.

£ 19s. 9d. £4 19s. 9d. £4 19s. 9d.

reserve machine upon receipt of £1 deposit, and ance 5/- weekly.

ENGINES.

or Boat Engine, two flywheels, fitted ropeller, pump, carburetter, and silencer	£8 10
onet, M.O.V., water-cooled, new	£7 15
Dion, water-cooled	£5 15
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w Water-cooled Stationary Engine	£6 15

Exchanges entertained.

, Gramaphone, Piano, Typewriter, Push-cycle, Motor Cycles, M.L.A.L. Spring Forks.

TH'S MOTORIES,
LES STREET, off Square Road,
062. HALIFAX. 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

ACCRINGTON.—Triumphs, 1910; Premiers, 1910; Zenith, 1910; Douglas, and Rex; we can give prompt delivery. Any make taken in exchange.

ACCRINGTON.—3½h.p. Minerva, spring forks, handle-bar control, Whittle belt, two-speed gear, and free engine, like new; £22 10s.

ACCRINGTON.—3½h.p. Vindec Special, spring forks, magneto ignition, in splendid condition; £17.

ACCRINGTON.—4h.p. Royal Riley, Fit-all two-speed, will suit tall rider, will climb a mountain; £13 10s.

ACCRINGTON.—3h.p. Quadrant, B. and B. carburetter, new belt, in splendid order; £7 10s.

ACCRINGTON.—3½h.p. Rex, surface, in splendid order, one of the olden times, but a trier, and successful; bargain, £6 10s.

ACCRINGTON.—3½h.p. Minerva, spring forks, magneto ignition, in good running order; £19 10s. All above are special bargains, and in working order.

ATHLETIC Supply Co., Accrington.

CROSS for Triumphs in Rotherham.—New 1910 and 1909 models in stock; second-hand 1908 Triumph £29; 1907 Triumph, magneto, £18; both in fine order.

2¾h.p. Minerva throughout, 1905, Dunlops, 26 by 2¼in., good running order; £8 10s.—Cross, Triumph agent, Rotherham.

LIGHTWEIGHT Douglas and F.N. motors, latest models in stock at 74, Bold St., Liverpool.—Hitchings, Ltd., are the sole agents, and invite enquiries.

SCOTT 2-stroke 2-speed Water-cooled Motor Cycles (for which Hitchings, Ltd., are the sole Liverpool and district agents), should be ordered now to ensure early delivery; send for descriptive catalogue.—Hitchings, Ltd., 74, Bold St., Liverpool.

LIVERPOOL Motorists should to protect their interests, buy Triumph, Douglas, Scott, and F.N. motors only from the responsible official agents, Hitchings, Ltd., 74, Bold St., who alone can substantiate the makers' guarantees, and also supply spare parts from stock.

TRIUMPHS.—Hitchings, Ltd. (the official agents), have several second-hand machines for sale at low prices, 1907, 1908, and 1909 models; all guaranteed; inspection invited.—Hitchings, Ltd., 74, Bold St., Liverpool.

BARGAIN.—3½-4h.p. 1909 Peugeot, perfect, new condition, modern, 1 w, stands, lamp, horn, spares, complete; cost 40 guineas, £25, or nearest.—80, Bispham Rd., Southport.

1909 P. and M., 3½h.p., excellent condition, winner of two gold medals, and special prize in A.C.U. 1,000 miles trials; £38 10s.—W. Milnes, Hallcroft, Wilmer Drive, Bradford.

TRIUMPHS, immediate delivery, come and see me before purchasing your 1910 mount, any make supplied; second-hand Triumphs taken in part payment.—Triumph Agent, 53, Trafford Rd., Salford.

READY for Delivery.—1910 Premier, 3½h.p., twin, quite the coming success, and undoubtedly the finest little jiggers on the market; 50 guineas; exchanges entertained; send for list.—Hardman, Stockton Heath.

1907 3½h.p. Magneto Triumph, h.b. control, adjustable pulley, F.R.S. lamp, generator, and horn, re-enamelled, plating excellent, machine and engine perfect, complete with spares; £22 10s.—No. 3,970, *The Motor Cycle* Offices, Coventry.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

3½h.p. Minerva, in good condition; must sell; £10.—F. C. Griffin, 30, Crompton Rd., Tipton.

3½h.p. Brown, magneto, spring forks, all accessories, not done 200 miles; £34.—Henshaw, wheelwright, Stockport.

TRIUMPH, new last January, splendid condition, rubber studded tyres, complete with all accessories; offers.—Benham, Holywell Terrace, Shrewsbury.

TRIUMPH, 1909, only run few hundred miles, guaranteed perfect order, non-skid tyres, complete with accessories; £38; only wants seeing.—Moss, Wem.

4h.p. Roc, magneto, two speeds, handle starting, take sidecar anywhere, practically new condition throughout; cost £56, sacrifice £27.—R. Else, Leawood, near Matlock.

1909 Triumph, enamel and plating as new, machine and engine guaranteed perfect throughout, searchlight lamp, horn, etc.; £37.—Browne, Beaconsfield, Oxton, Birkenhead.

SECTION IV.

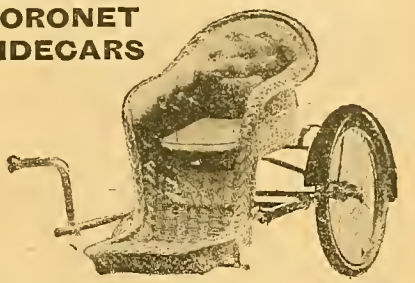
Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

2¾h.p. Zedel, safe, low, and speedy, 26in. wheels, all spares; £7 10s.—Macer, 20, Park St., Peterborough.

1¾h.p. Minerva Lightweight, ready for road, condition perfect; £5.—Simpkin, 8, St. Margaret's Rd., Peterborough.

BOOTH'S MOTORIES
SPECIALITIES.

£4 17s. 6d.
CORONET SIDECARS



Before buying a Sidecar, send for illustrated circular explaining the advantages of "CORONET" Sidecars over other makes. Delivery from stock to suit Minervas, Rexes, N.S.U.'s, Triumphs, and any other make. Attached in three minutes.

Price £4 17s. 6d. Discount to trade.

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The best variable speed pulley on the market. Loose flange securely held in any position by a simple yet ingenious contrivance. Gear can be altered without the aid of spanners, lock ring easily operated by hand. Buy a "Coronet" pulley and gear your machine suitable for hill-climbing.

Standard makes, such as Rexes, Triumphs, Minervas, supplied without the necessity of sending old pulley for pattern. **Discount to trade.**

"GRIPSKIN" BELTING.

Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

¾in., **10d.**; ⅞in., **11d.**; 1in., **1/1**; 1¼in., **1/2.**

Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

NEW DUNLOP AND CLINCHER COVERS.

24 or 26 or 28 × 2in.	17/-
24 or 26 or 28 x 2¼	17/6
24 or 26 or 28 × 2¼in.	18/-
Clincher Tubes, all sizes ..... each	4/11
28 × 2 or 2¼in. Dunlop Wired Covers ..... "	11/6
24 × 2¼in. Clipper-Reflex Beaded Covers .... "	14/6

Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from **59/6.** Your old coil and acc. taken in exchange.

CARBURETTERS.

BROWN AND BARLOW. AMAC.

Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters. Be up to date. Price reasonable.

MISCELLANEOUS.

Mudguards and Stays 3in., **2/11**, 4in.,	3/6
Silent Silencers for engines to 5 h.p.	3/3
Long Handle-bars, well plated	5/6 and 6/6
500 Fuller Midget Trembler Coils	17/6
200 Fuller Plain Coils (your old coil taken in exchange)	10/6
250 Mirror Lens Lamps, with generators	14/9
50 Pairs New X'lall Spring Forks, latest	15/-
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Albion Free Engine Clutch, fit Rex	29/-
Mabon Free Engine Clutch, fit Triumph	39/-
Good Forecarriage, complete, with tyres.....	£2 19s.
Light Car Frame, with springs and wheels	£2 10s.
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New Ideal Ball Bearing Fan	12/6
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Second-hand pair XL'All or Matchless Spring Forks	9/6
De Dion Two-speed Gear Box, nearly new	£2 5s.
Lucas King of the Road Lamp and Generator..	£1 0s.
Lucas Acetephote, self-contained	8/6

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), HALIFAX.
Telephone 1062.

MOTOR BICYCLES FOR SALE.

TRIUMPH, 1909, free engine, overhauled at Christmas, £5 worth spares; £40.—3,941, *The Motor Cycle* Offices, Coventry.

4h.p. Twin, Peugeot engine, 21in. frame, 26in. wheels, fast and reliable; photo; bargain; 14 guineas. — Morris, photographer, Bourne.

TRIUMPH, late 1908, splendid condition, new Palmer cord tyres, spares; £32, no offers.—C. W. Blythe, 17, Market Place, Coventry.

F.N., 1909, 5-6h.p., in good all-round order; price £32, or nearest offer for prompt cash.—V. A. Holroyd, Warwick Av., Earlsdon, Coventry.

WOLF Lightweight, 1909 model, new rubber studded tyres, all accessories, perfect condition; £13.—Chatwin, 162, Hagley Rd., Birmingham.

MOTO-REVE, 1909, as new, only ridden 400 miles, guaranteed faultless and perfect; £25, with all accessories.—27, Smithford St., Coventry.

3½h.p. Bat, excellent condition, all accessories; must be sold immediately; owner going abroad; £10; offers.—D. Milner-Moore, Quadrant, Coventry.

3h.p. Ariel, spring forks, Palmer tyres, stand, acetylene lamp, etc., etc., perfect order, just been overhauled by Ariel Co.; £14, a bargain.—Fox, 136, Suffolk St., Birmingham.

3½h.p. 1909 Rex, excellent condition, just been overhauled by makers, new cylinder and valves, bearings rebushed, R.O.M. tyre back wheel, petrol and oil gauges, lamp horn, tools, all perfect; £34, or near offer.—Pooley, 187, Monks Rd., Lincoln.

IVAN B. HART DAVIES wishes to sell his End-to-end Triumph, 85 by 88 engine, two gallon tank, special handle-bars, spare butt-ended tube, all tools and spares, lamp, horn, etc., ran 2,000 miles, as good as new; £40 cash.—Apply, I. B. Hart-Davies, Bank St., Rugby.

3½h.p. Humber, two-speed and free engine, new last June, since overhauled by makers and fitted with 1910 improvements, including Druid spring forks, plain connecting rod bearing, new footboards and control, large belt pulleys, complete with lamp and tools, Dunlop tyres (unpunctured); £34, or nearest; bargain. — G.S., 37, Northumberland Rd., Coventry.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

3½h.p. Rex, two-speed, Roc clutch, magneto, as new; £30.—Leavis, Downham Market.

3½h.p. N.S.U., magneto, perfect order and condition, new tyres; £14, no offers.—3a, Bridge St., Cambridge.

3½h.p. M.M.C., Chater-Lea No. 6, copper torpedo tank, everything in good order; £9.—37, Searle St., Chesterton, Cambridge.

3½h.p. Rex, single-cyl., magneto, spring forks, Clincher tyres, long handle-bars, good condition; £12 cash.—Palmer, 39, London Rd., Ipswich.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

MOTOSACOCHE (accumulator), late 1908, spring forks, perfect; £17.—Dr. Burd, Upton-on-Severn.

1908 Twin Rex, excellent condition; too powerful present use; accept £27.—43, Pychin Crescent, Tredegar, Mon.

GLAMORGAN.—Brand new standard Triumph, 3½h.p. 1909 (late delivery), never been ridden; £42.—Newark Lewis, photographer, Port Talbot.

5h.p. Twin Sarolea, two-speed, free engine, chain drive, hand starting, in perfect order, and good condition; £20.—Jones, 104, William St., Ystrad Rhondda, Glam.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

1909 Triumph, excellent condition, horn, spares, etc.; £38, bargain.—Morris, Holywell, Oxford.

2¾h.p. Kerry, low seat, long handle-bars, condition good; £11.—Lieut. Pinder, Victoria Barracks, Portsmouth.

2½-3h.p. Twin-cyl. Fairy Lightweight, excellent condition; £9.—J. S. Willway and Sons, Ltd., St. Augustine's, Bristol.

3½h.p. Quadrant, handle-bar control, carburetter, magneto, good condition and running order.—Morris, Holywell, Oxford.

N.S.U., 3½h.p., magneto, spring forks, condition as new, guaranteed; expert examination; £22 10s.—Claypoole, 63, Queen Sq., Bristol.

3¾h.p. 1909 N.S.U., magneto, handle-bar control, spring forks, practically new; £30.—J. S. Willway and Sons, Ltd., St. Augustine's, Bristol.

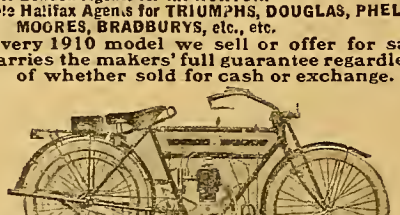
2¼h.p. Kerry Motor, complete, loop frame, new cyl., [illegible] spare cylinder, less tyres, accumulator, saddle; £4.—Motor, 11, Victoria Rd., Winchester.

MAUDES' MOTOR MART

HALIFAX AND LONDON

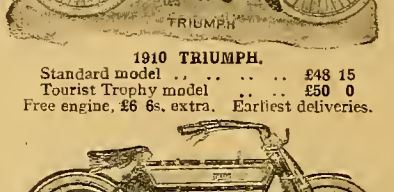
Sole Yorkshire Agents for the T.A.C. Motor Cycle de Luxe
Sole London Agents for the NORTON.
Sole Halifax Agents for TRIUMPHS, DOUGLAS, PHELON MOORES, BRADBURYS, etc., etc.

Every 1910 model we sell or offer for sale carries the makers' full guarantee regardless of whether sold for cash or exchange.



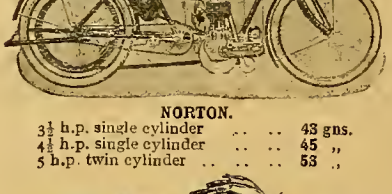
1910 TRIUMPH.

Standard model £48 15
Tourist Trophy model £50 0
Free engine, £6 6s. extra. Earliest deliveries.



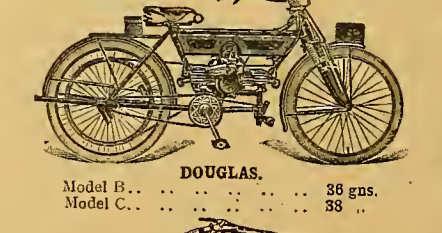
NORTON.

3½ h.p. single cylinder .. .. 43 gns.
4½ h.p. single cylinder .. .. 45 ,,
5 h.p. twin cylinder .. .. .. 53 ,,



DOUGLAS.

Model B.. .. .. 36 gns.
Model C.. .. .. 38 ,,



Bradbury 3½ H.P.

1910 Standard model £46 0
Delivery from Stock.

T.A.C. Motor Cycle de Luxe.

Standard model .. .. 60 gns.
Wheel-steering .. .. 63 ,,
Wheel-steering de Luxe .. .. 70 ,,
Discount to cash buyers.

HUMBER

1910 3½ h.p. two-speed £50 0
1910 3½ h.p. Standard £45 0
Twin Premier 3½ h.p., maker's price 50 gns. Our price £48

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MAUDES' MOTOR MART,
Powell Street, HALIFAX.
'Phone: 433. Telegrams: "Petrol, Halifax."
136, Great Portland Street, LONDON, W.
'Phone: 552, Mayfair. Telegrams: "Abdicate, London."

MOTOR BICYCLES FOR SAL

1907 3½h.p. Minerva, spring forks, footrests, adjustable pulley, low frame, tyres excelle dition; £13.—Apply, Hardy, New College, Oxfor

CHATER-LEA-MINERVA, 1¾h.p., long bars built, new Palmer back, Clincher front, 26in. all accessories, splendid condition; £6.—Randall, 7 ton Rd., Easton, Bristol.

4½h.p. F.N., lamp, horn, generator, watch, mirror, new Gresa N.S. cover, two spare butt-end tools; cost £52 four months ago; accept £34 Morris, Holywell, Oxford.

MORRIS, Holywell, Oxford.—For fair dealing l and second-hand motor cycles; large stock to from; F.N., Triumph, Rex, Douglas, Quadrant; stock of others; send for list.

1906-7 Triumph, perfect condition, new tyre belt, 1909 spring forks, new Broadhurst plating, etc., excellent, just overhauled; approval or nearest.—Box 3,963, *The Motor Cycle* Offices, try.

3h.p. Triumph-J.A.P., lately overhauled by mak cluding enamelling and plating, all spares, ing non-skid tyre, speedometer, and separate ga lamp, all in new condition, guarantee 45 m.p.h.; full particulars; £18.—Gordon Jones, Cowes.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, and Sussex.

ELEPHANT.—2¾h.p. Kelecom, magneto, 26 by skids, perfect order; £12.

ELEPHANT.—3h.p. Fafnir, Chater frame, foot very low, as new; £11.

ELEPHANT.—Others from £4; sundries and p all kinds; complete machines and accessories —10 and 12, Elephant Rd., London.

NYE'S!—1909 Triumph, Kempshalls, in perfec dition, guaranteed; £33.

NYE'S!—5h.p. Vindec, Roc two speeds, magnet sidecar machine; £32.

NYE'S!—Special bargains, four lightweight magneto, sound condition; £13 15s.

NYE'S!—3h.p. Triumph, handle-bar control; to ride away; £14.

NYE'S!—1910 Moto-Reves; immediate delivery machine on approval; exchanges; two 1909 at bargain prices.—Nye's, 69 Leather Lane, H London. 'Phone, 6299 Holborn.

3½h.p. Quadrant, absolutely as new; £14.—Boot 74, High St., Bromley, Kent.

TRIUMPH, 1907 (bought 1908), very little used —Morris, 139, Finchley Rd., N.W.

£14.—Minerva, 2¼h.p., new Micheline, throughou as new.—424, High Rd., Streatham.

MINERVA, 1¾h.p., Dunlops, fine condition; b £5 15s., near offer.—27, Ingleby Rd., Ilford.

IF You Want Bargains in second-hand motor you can get them at Wauchope's, 9, Shoe Fleet St., London, E.C., just off Ludgate Circus

WHITTLE'S.—F.N., 5-6h.p., latest model, 4-cyl neto, h.b. control, nearly new; £32 10s.

WHITTLE'S.—Rex de Luxe, 5-6h.p., twin, m Roc clutch, practically new; sacrifice £

WHITTLE'S.—Triumph, 3½h.p., late 1907, m h.b. control, like new; cheap, £25.

WHITTLE.—F.N., 1909, 1¾h.p., lightweight, neto, spring forks, nearly new; bargain, £

WHITTLE'S.—N.S.U., 6-7h.p., twin, magnet fast, like new throughout; £25.

WHITTLE'S.—Minerva, 2¼h.p., £6 15s.; also Minerva, £7 15s.; exchanges entertai Whittle's Motor Exchange, Earlsfield, 'Phone, 711 Wimbledon.

TRIUMPH, October, 1909, new, unpacked, £4 Douglas, once used.—84, Rodenhurst Rd., ham.

WHY do Nye's sell so many machines? Te satisfaction. Try them.—69, Leather Lane born.

4½h.p. Twin Minerva, perfect order; £18; p change cycle.—Ellis, 112, Canbury Park Kingston.

3h.p. Ormonde, perfect condition, climb anythin or exchange for lightweight.—35, Links Rd. ing, S.W.

FOR Sale, motor cycle, without engine and offers.—Gray, jun., Upland, St. Mark's Hil hiton.

WANDERER, 2¼h.p., equal any 3½h.p., new A cost £43, going at £28.—40, Replingham Southfields.

1¾h.p. F.N. Lightweight, nearly new, magneto, forks; £18 10s., lowest.—Morgan, 84, Pentne Balham, S.W.

2½h.p. Brown, in splendid running order, low p £3; 2¾h.p. Minerva-Phœnix, very low, and order, £7; twin Vindec, £22 10s.—65a, Rosendal West Dulwich.

TOR BICYCLES FOR SALE.

'STEAD for Bargains.—We undertake gradual ayments or exchanges.—Address, 5, Heath St. 78 P.O.

'STEAD.—1909 Triumph, splendid condition nded tyres, all accessories; £53, special bar-

'STEAD.—1909 2¾h.p. Douglas, magneto and ring forks, all accessories, new condition; £28.

'STEAD.—3h.p. N.S.U., splendid condition, ith all accessories; bargain price, £13.

'STEAD.—4½h.p. F.N., splendid condition, with l accessories, late model; bargain, £25.

'STEAD.—Sole London and district agents for ncoln Elks, all models in stock; special price

'STEAD for all latest 1910 models; gradual ayments or exchanges; delivery from stock; ng.

'STEAD.—Triumph, 3½h.p., 1907, new tyres, plendid condition; £27; all accessories.

'STEAD.—5-6h.p. F.N., 1909, splendid condi- on, all accessories; £29 10s.; 4½h.p. F.N., el, £28.

'STEAD.—3½h.p. Fafnir, M.O.V., very low, hater-Lea frame; £15; all accessories.

'STEAD.—1909 Minerva, 3½h.p., magneto and ring forks, £27; Lincoln Elk, 1909, magneto, lition, £19 10s.

'STEAD.—7-9h.p. T.T. Matchless, late 1909 A.P. engine, 2¾in. tyres, as new; £33, special -Rey, 5, Heath St. Tel.: 2678 P.O., Hamp-

IPH, 1909, little used, equal to new, un- tched; £37: approval.—Eagles and Co., High n.

N.S.U., 1908, magneto, spring forks, 1in. hamrock belt, two-speed gear and free engine ondition; £26.—Eagles and Co., N.S.U. Agency.

BURY, 3½h.p., 1909, Bosch magneto, spring ks, Clincher studded tyres, new condition; £29 proval.—Eagles and Co., High St., Acton.

N.S.U., low built, magneto, spring forks, ex- ellent condition; £18 10s.; approval.—Eagles High St., Acton.

.S.U., perfect, guaranteed, two speeds, new con- tion; must sell; £20.—Hunter, 42, Victoria St., lethwick.

Triumphs and 1910 Humbers in stock; your resent machine and cash for one.—128, High tenham.

F.N., in good condition; £7, or exchange good ush bike and cash.—F. Whitaker, Green St. rpington.

Zenith Gradua, splendid condition, tyres un- nctured; 35 guineas.—V. A. Gunther, Hampton iddlesex.

SACOCHE, 1908, new tyres, all accessories, res, etc.; £13.—13, South Bruton Mews, Berke- London, W.

Sarolea, Chater-Lea frame, low, fast.—Dunlops, essories; £6 10s.—5, Belgrave Mansions, Cold- Lane, Brixton.

Bat-M.M.C., just overhauled, new rings, pow- ful machine; £18, bargain, no offers.—Metford, nion Rd., Hendon.

Minerva, new in July, grey finish, 1910 B. and carburetter, all spares; £26, or offers. — B. , Richmond Rd., Ilford.

C Special, Roc two-speed, late 1907, new tyres, ranteed perfect, suit S.C.; bargain, £24.—41, Rd., Cricklewood.

Premier Motor Cycle, in stock, no waiting; 1909 remier, nearly new, perfect order, £35.—Thos. otor agent, Frodsham.

Triumph, equal to new, accessories; cost over 4, take £34 lot; seen by appointment. — E. lenbourne, Ridgeway, Enfield.

IPH, 1909, would pass for new, speedometer, aers, numerous extras; 40 guineas; exchange ed.—Bunting, Wealdstone.

-3½h.p. Rex, absolutely to date, new Amac erous accessories, fast; £17, offers, bargain.— ware Mansions, London, W.

Motor Cycle, splendid condition, just been over- lled. Quadrant engine, spring forks; £8 15s. 9, Wellesley Gardens, Ilford.

M.O.V., green and gold lined, low position, rembler, two brakes, Clinchers, practically new; egg, 2, Sidney Rd., Beckenham.

r quick sale.—De Dion, two speeds, reverse, 2- ter, hood, screen, lamps, tools, just thoroughly ad.—66, Grand Parade, Harringey.

Royal Star, 26in. wheels, two pulleys, a good eliable machine, all accessories; £10 10s.—Mills, n," High Rd., East Finchley, N.

n Want Bargains in second-hand motor cycles u can get them at Wanchope's, 9, Shoe Lane, . London (just off Ludgate Circus).

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

BARGAINS IN
1909 REXES. 1909

1909 3½ h.p. Tourist REX	£35	0
1909 3½ h.p. REX DE LUXE, two-speed	£45	0
1909 5 h.p. REX DE LUXE, two-speed	£48	0

Compare these with 1910 prices.

1910 REXES. Liberal Exchanges.
Deliveries from stock.

SIDE-CAR MACHINES.

1909 5 h.p. TWIN REX, nearly new	£32	10
1908 5 h.p. Two-speed REX DE LUXE, new	£40	0
1910 8Twin Tourist REX, magneto, spring forks	£26	10
1908-9 four-cyl. F.N., fine condition	£25	10
1908 5 h.p. REX DE LUXE, magneto, extra good	£29	10
1907 Twin magneto REX, spring forks	£20	0
1907 5½ h.p. Twin REX, spring forks	£16	10
6 h.p. N.S.U., magneto, spring forks, h.b. control	£24	10
7-8 h.p. Twin MINERVA and N.S.U. Sidecar; very smart lot; spring forks	£29	0
Twin WERNER Lightweight, spring forks	£12	10
5½ h.p. REX DE LUXE, Roc clutch	£25	10
6 h.p. Twin ANTOINE, extra good, R.O.M.	£18	10
Twin CLEMENT, spring forks spray	£9	15

"POPULARS."

1910 Magneto TRIUMPH, only done 500 miles	£42	15
1909 3½ h.p. PHELON & MOORE, as new	£39	10
1909 3½ h.p. Magneto REX, nearly new	£32	10
1909 3½ h.p. REX Speed King, as new	£32	10
1909 3½ h.p. two-speed HUMBER spring forks	£32	10
1908 3½ h.p. Magneto REX, special machine	£24	10
1908 3½ h.p. 2-speed REX DE LUXE	£30	0
1908 3½ h.p. N.S.U., spring forks, as new	£26	10
4 h.p. ROC, magneto, clutch, good, h.b. control, rubber non-skids	£24	0
4 h.p. ANTOINE, high tension magneto	£18	18
3 h.p. Magneto SIMMS, 2¼m. Palmers	£16	10
3 h.p. SINGER, V belt H.T. magneto	£16	10
1907 3½ h.p. QUADRANT, spring forks	£17	10

SPECIAL BARGAINS.

3 h.p. HUMBER, spray, free engine	£10	10
3 h.p. BRADBURY, long and low	£10	0
1906 3½ h.p. REX, spring forks, M.O.V.	£15	10
4 h.p. STEVENS, h.b. control, band brake	£13	10
3 h.p. CLYDE, high-tension magneto ignition	£14	10
2¾ h.p. KERRY, 1 gat and low, spray	£9	10
3½ h.p. REX, 22 frame, re-enamelled	£7	10
3 h.p. BEESTON-HUMBER, spray	£9	16
3½ h.p. WERNER, used with passenger	£13	10
2½ h.p. Light ARIEL, low build	£8	15
2¾ h.p. LLOYDS, vertical, spray	£6	0
2 h.p. F.N. SAROLEA, untested	£4	5

Monster list on application. Cash offers considered.

Five 5½ h.p. TWIN REXES, spring forks, long bars, low frames, aluminium finish, blue lines, 26in. wheels **£16 10**
Exchanges or easy payments.

EASY PAYMENTS.

5/- weekly and reasonable deposit secures any of these machines. All tested and ready for the road:

2¾ h.p. Bradbury	£10 0	2¾ h.p. Kerry	£9 10
3 h.p. Clyde	£15 0	2½ h.p. Ariel	£9 13
3 h.p. Ariel	£10 0	2¾ h.p. Werner	£8 10
3 h.p. Humber	£10 0	3½ h.p. Werner	£13 10
3½ h.p. Rex	£10 10	2¾ h.p. M.M.C.	£9 10
2½ h.p. Lloyd's	£7 10	2 h.p. Humber	£8 10
3½ h.p. Rover	£14 0	3 h.p. Bradbury	£10 10

CARS AND TRICARS.

Any reasonable exchange considered. Room wanted.

10-12 h.p. two-cylinder BRUSH car	£39 10
4½ h.p. BRADBURY w.c. tricar, two-speed	£35 0
5½ h.p. w.c. two-speed REXETTE, like new	£24 10
5½ h.p. Twin REX, fitted Mills-Fulford Forecar	£14 10

MISCELLANEOUS.

New B.&B. carburetter, h.b. control	£1	5	0
New AMAC " "	£0	19	6
New large size LYCETT'S motor saddle	£0	9	6
MABON clutch, fits Triumph	£1	19	6
28 x 2 Clipper Reflex Cover, beaded, NEW	£0	17	6
28 x 2½ Beaded Edge Clincher Cover, NEW	£0	17	6
New Spring Forks, fit 1909 or 1910 Rex	£1	19	6
MONTGOMERY, seats two, nearly new	£4	5	0
New DE LUXE Sidecar, special fittings	£5	17	6
H.B. Control, Amac	£0	14	6
" B. & B.	£0	16	6
XL-All Spring Forks	£0	9	6
½-horse Electric Motor, 110 volts	£1	19	6
New Tyres, all sizes, from	£0	12	9
Tubes, with valves		4/11	

MOTOR BICYCLES FOR SALE.

3h.p. Triumph, magneto, Riches tubes, Shamrock belt, condition perfect; £22.—54, Wellington Rd., St John's Wood.

TOURIST Trophy Vindec Special, perfect in every detail; any examination; special bargain; offers.—Seen at Anglo-Saxon Co., 31, Newgate St., City.

1910 Triumph, Premier, F.N., and Moto-Reve; instant delivery; best prices in exchange; send particulars.—Batchelor and Co., Clarence St., Kingston.

3½h.p. Vindec, magneto, spring forks, perfect, £14; 2½ 1½h.p. wolf lightweight, only ran 100 miles, £17.—Mitchell, 14, High St., Rusthall, near Tunbridge Wells.

£50.—Rex, 3½h.p., new tyres, Whittle belt, spring seat, two accumulators, guaranteed running order; £9.—Winstanley, 2, Bryanston Mews East, Bryanston Sq., London.

3½h.p. Kerry, new tyres, belt, and accumulator, first-class condition; £10, or offer.—Inspection at Harvey, Hudson, and Co. (next George Hotel), South Woodford.

VINDEC Special, 2¾h.p. F.N., Bosch magneto, Truffaults, B. and B. H.B. control, Dermatine, adjustable pulley, low in going order; £15.—Dawson, 4, Winthorpe Rd., Putney.

ROC Clutch and two-speed geared 3½h.p. (about) motor cycle, spring forks, h.b. control, low, just overhauled; absolutely must sell.—Roc, 17, Kenmure Rd., Mare St., Hackney.

3h.p. Quadrant, low, fast, long bars, pulls sidecar anywhere. Peter-Union tyres, belt, everything splendid condition, accessories; trial; bargain, £8.—45, Charles St., Stepney.

2¾h.p. De Dion, magneto ignition, very low and reliable, tyres, enamelling and plating perfect, B. and B. handle-bar control; £17.—F. Whitaker, Green St. Green, Orpington.

QUALITY.—1908 3½h.p. Rex, spring forks, 1910, B. and B., h.b. control. 1910 26 by 2¼ special Continentals and butt-enders, etc.: cost £45, sacrifice £16 10s.—48, Walton Rd., East Molesey.

F. G. SMITH.—Two 1909 3½h.p. Triumphs, one run 500 miles only, R.O.M. tyres, speedometer, and all kit, splendid order, and thoroughly tuned; £35 either.—Wallace Lodge, Chadwell Heath, Essex.

TRIUMPH, 3½h.p., September 25th, 1908, not run 1,000 miles, and absolutely like new, perfect condition, lamp, separate generator, horn, tools, etc.; £32 10s.—Batchelor, Clarence St., Kingston.

3½h.p. White and Poppe, Bosch magneto, Advance variable pulley, Amac carburetter, handle-bar control, Bates tyres, condition excellent; £16 10s., no offers.—A. Vaughan-Jones, 92, South Hill Park, Hampstead.

1909 Triumph Bicycle, fitted with free engine, and all latest improvements, all accessories, not been ridden more than 20 miles, new last September; price £45, cost £60.—Howard Bartholomew, farmer, Betsham, Southfleet.

TRIUMPH, 3½h.p., 1907, magneto, two-speed, free engine and sidecar, new steel studded Michelins and tubes throughout, in grand order, H.B. control, powerful lamp, etc.; £30.—J. W. Lewsey, 80, Durants Rd. Ponders End.

CLEARANCE.—2¾h.p. Kerry, £8 10s.; 6h.p. twin Antoine, £17 10s.; 2¾h.p. Brown, £8 10s.; 2¾h.p. Quadrant £4 10s.; 2¾h.p. J.A.P., £8 10s.; 2¾h.p. Phoenix, magneto, two speeds, £14 10s.; exchanges; please call, or write; trials.—128, High Rd., Tottenham. 'Phone 1982, Tottenham.

TWO Twin Minerva Cycles, 4½h.p., 26 by 2½ tyres, spring forks, electric ignition, lamps, etc., £18 10s. each; 2¾h.p. Minerva, spring fork, £10; 2¾h.p. Ariel-Minerva, spring fork, £8 10s.; 1910 Triumphs and 1910 twin Enfields in stock; 10-12h.p. car, 4-cyl., Cape hood, and lamps, £75.—Wilton Cycle Co., 110, Wilton Rd., Victoria Station, S.W.

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

TRIUMPH and Motosacoche, 1910 models in stock; cash, exchange, deferred payments.—Dan Guy, Weymouth.

1910 Quadrant, Clincher studded Palmer tyres, perfect, little used; £40, or exchange 1910 Douglas.—P. Thorne, Brunswick, Tiverton

SECTION X.

Scotland.

3¼h.p. Rex, excellent running order; £5, easily worth double.—Wm. Baillie, 222, Broomielaw, Glasgow.

LIGHTWEIGHT, 1¾h.p., B. and B. carburetter, h.b. control, P. and H. headlight, just re-bushed, in splendid order; £6; good reason selling.—148, London St., Glasgow.

1¾h.p. F.N., late 1908, bargain, £18 10s.; 4h.p. Wolf 14 Palmer tyres, splendid machine, £15 10s.; exchange cheap motor or push bike.—Miller, 77, Merry St., Motherwell.

1907 Triumph, 3½h.p., magneto, absolutely reliable, B and B. handle-bar control, new unpunctured Shamrock-Excelsior studded cover, and ditto best quality butted tube, on back, good Clincher front, Comel belt, spares, two valves, and almost new S.G. belt, horn, tools, etc.; £28 net.—Robinson, 153, Oxford St., Glasgow.

MOTOR BICYCLES FOR SALE.

SCOTLAND'S Largest Motor Cycle Firm.—Rex, V.S., Indian, Moto-Reve, Phelon and Moore, Zenith, Douglas, Roc, Griffon; we stock all these, and can supply any other make.—Alexander's Motor Exchange, Lothian Rd., Edinburgh.

SECTION XI.

Ireland and Isle of Man.

REX, 3½h.p., good condition, ridden less than 2,000 miles, 26 by 2¼ Clincher A Won tyres; best offer accepted.—P. A. Jeffares, New Ross, Ireland.

TRICARS FOR SALE.

9h.p. Singer, Palmer cords, 3½ back; £60. — Corner, Inglehy Radlett, Herts.

4h.p. Antoine Tricar, open, wheel steering, tyres new; £16.—147, High Rd., Wood Green.

3½h.p. Humber Tricar, free engine, cane body, fine order; £10.—128, High Rd., Tottenham.

TRICAR, 4h.p. Humber, little used, free engine; bargain, £17; must sell; offers.—Sharpe, Mildenhall.

7h.p. Sociable Tricar, 2-cyl., water-cooled, three speeds, reverse, perfect order.—17, North St., Abergavenny, Mon.

9h.p. Riley, three speeds and reverse, 700 by 85 tyres, good condition; take motor cycle part.—785, High Rd., Leytonstone.

£15.—6h.p. water-cooled tricar, wheel steering, two speeds, clutch, climb anything, good condition.—Pearse, Plain, Bristol.

6h.p. Singer Coach-built Tricar, water-cooled, two speeds, wheel steering, heavy tyres; £25.—Beddington, Mealcheapen St., Worcester.

TRICAR, 4½h.p., clutch, B. and B., good condition, new tyres; £16; owner bought car.—Hitchcock, 59, Magdalen St., Colchester.

4½h.p. Puch Tricar, N.S.U. two-speed gear, magneto, Phœnix former guaranteed perfect; £15.—120, Pershore St., Birmingham.

FORMAN Tricar, 4½h.p., water-cooled, Chater-Lea, M.O.V., Kent three speeds, side radiators, good order; £22 10s.—406, Garratt Lane, Wandsworth.

WOLF Tricar, water-cooled, three speeds, free engine, Chinchers, coach-built, all fittings perfect condition; £20, lowest.—Chilton, High St., Watford.

RILEY Tricar, 9h.p., excellent condition throughout, full set lamps, headlight, three speeds and reverse, spares, tools; £45.—Atkings, Longmoor Camp, Hants.

HUMBER Tricar, 3½h.p., free engine and clutch, in perfect condition; sacrifice £10, or exchange a good motor bicycle.—Griffith, 1 Chatham Row, Bath.

ROOM Wanted.—6h.p. Quadrant, overhauled, thorough order, with accessories; 20 guineas; bought car; exchange good motor cycle.—212, Shobnall, Burton-on-Trent.

PHŒNIX Tricar, 4½h.p. De Dion engine, water-cooled, car tyres, wheel steering, two speeds, chain drive; £20, or near offer.—Greenwood Bros., Wellington Rd., Stockport.

£20, or near offer.—White and Poppe, aluminium car four speeds and free engine, handle starting, syphon water-cooled, Whittle belt, Dunlop studded tyre.—View at Railway Inn, Worcester Park.

PHŒNIX Trimo, two-speed gear, free engine, can be converted into a motor cycle; £13, or what offers? want of room forces sale; or exchange anything useful with a little cash.—19, Salisbury Rd., Watford.

4½h.p. Humber Tricar, water-cooled, two speeds, coach-built front, new R.O.M. studded back tyre, absolutely reliable, smart; £20; consider exchange motor cycle.—Tree, 61, Thurlby Rd., West Norwood, S.E.

TRICAR, 7-9h.p. Peugeot, Angling two-speed gear, Dunlop car tyres, non-skid on back wheel, two bucket seats, side by side, numerous spares, new last July; £35.—A.C., 139, Kilburn Park Rd., London.

7h.p. J.A.P.-Zenith, sprung, open frame, coach seats, Oppermann three-speed gear, three Palmer cords, nearly new, three accumulators, two electric side and acetylene headlight, generator, spares, etc.; £32.—White, Brewery, Crumlin, Mon.

5h.p. Open Frame Tricar, Stevens engine, and clutch, three-speed Kent gear, wheel steering, wing guards, 26 by 2¼ wheels, in perfect going order, with two of Taylor's dust screens fitted; £23, or offer; photo.—237, Hertford Rd., Edmonton.

6h.p. Rex Tricar, two speeds, free engine, coach-built, wheel steering, absolutely perfect, running order, just overhauled, and new parts where necessary; any trial; £25; part exchange; offers invited.—No. 3,964, *The Motor Cycle* Offices, Coventry.

9h.p. Singer Tricar, double cyl., water-cooled, three speeds and reverse, splendidly equipped with non-skid tyres, Stepney wheel, and all spares, glass wind screen, Cape hood, lamps, including acetylene head lamp; only reason for selling, going abroad.—G. H. Irwin, 6, Richmond Terrace, Netley Rd., Southsea.

5h.p. Twin-cyl. Light Tricar (Rex Triette), Bosch magneto, two-speed gear, in rear hub, Roc clutch, handle starting, cane forecarriage, footboards, special 1¼in. Watawata belt, adjustable pulley, Brooks saddle seat on Rex spring seat-pillar, complete with lamp, horn, and spares, registered; can be seen in Midlands; price £40.—No. 3,883, *The Motor Cycle* Offices, Coventry.

QUALITY TELLS.

WE work on small profits, and the "get rich quick" style is not part of OUR business policy.

SIDECAR MACHINES.

1908 6 h.p. ROC, magneto and 2 speed	£30	0
1908 3½ h.p. TRIUMPH-ROC, 2-speed	£35	0
1908 6 h.p. REX DE LUXE, mag., clutch, etc.	£28	0
1908 Twin REX, magneto, very low	£25	0
1909 5 h.p. Twin REX, fine machine	£32	0
1909 ditto, quite new, unused	£36	0
1910 6 h.p. CLYNO, brand new. Offers wanted.		
7-8 h.p. Twin MINERVA, M.O.V., fine machine	£25	0
6 h.p. Twin REX, Roc 2 speeds	£22	0
1909½ Twin REX Racer, lovely goer	£38	0
1909½ 3½ h.p. REX Racer, soiled only	£32	10
6 h.p. Twin REX, magneto, h.b. contol	£19	10
6 h.p. Twin REX, spring forks, 26" wheels	£16	10
3½ h.p. VINDEC, magneto, Nala 2 speeds..	£19	0

Any of the above fitted with one of our new Sidecars for **£4 17s. 6d.** extra.

SOLO MOUNTS.

1910 3½ h.p. REX, slightly soiled. Offers wanted.		
1910 3½ h.p. PREMIER, twin-cylinder	50	Gns.
1909 3½ h.p. REX, R.O.M. tyres	£30	0
1908 3½ h.p. REX, almost like new	£22	0
1908 3½ h.p. GRITZNER, mag., free engine	£18	0
1908 REX Lightweight, fine condition	£17	0
1907 3½ h.p. REX, lovely goer, very smart	£15	15
3½ h.p. REX, M.O.V. spray	£10	10
3½ h.p. 1906 REX, M.O.V., spring forks	£14	0
3½ h.p. Low REX, M.O.V., h.b. control	£11	0
3½ h.p. REX, Bosch magneto, fine goer	£12	0

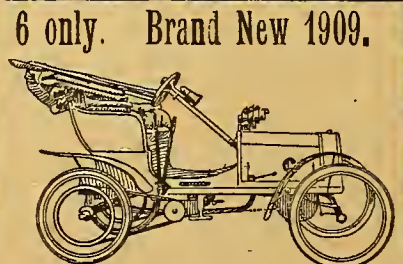
LIGHTWEIGHTS.

1908 N.S.U. Lightweight, Bosch magneto	£17	0
1909 MOTOSACOCHE, soiled only	£24	0
1908 REX Featherweight, magneto	£18	0

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Clarendon	£9	3½ h.p. Humber	£9
3½ h.p. Rex	£9	3½ h.p. Rex, M.O.V.	£11
3½ Centaur, M.O.V.	£9	4 h.p. King	£9

6 only. Brand New 1909.



5½ h.p. **O.T.A.V. VOITURETTES,** complete with hood, lamps, tools, and spares, **£60** each. Magneto ignition extra.

FAHRAR'S "HALIFAX" SIDECARS.

£4 17s. 6d. complete with best tyres. Guaranteed 12 months. An ideal winter attachment, quite rigid. Good, stylish, and comfortable. No side-slip. Beautifully sprung on double C spring. Approval anywhere. Send for descriptive circular. Don't buy until you have seen ours.

IMPORTANT.—For a few days, we will accept your old sidecar or trailer in part payment.

ACCESSORIES, Etc. Get my List. POUNDS SAVED.

	s.	d.
1½ h.p. Minerva engine	25	0
2½ h.p. Monarch engine	35	0
28 x 2 or 2½ Dunlop Wired Covers	11	6
Lycett's B Tool Bags, shop soiled, each	4	6
Smaller Motor Cycle Bags, shop soiled, each	2	6
"Hella" Gas Lamps with separate generator	14	6
"Camel" V Belting, ⅞in. or 1in., per foot	1	3
Latest pattern Plated Handle-bars, drop ends	5	6
Enamelled Mudguards, with stays, etc., pair	2	11
Three-note "Fanfare" Horns, very penetrating	7	6
Clincher Rubber-studded Covers, 26 x 2¼in., each, 29/-.		
Clincher Tubes, all sizes, with valves, 4/11 each.		
New Loop Frames for vertical engine, 30/- each.		
1909 Amac Carburetters, h.b. control, 19/6 each.		
1910 Brown & Barlow, ditto, 28/- each.		
Large Motor Cycle Saddles, to clear, 5/- each.		
Forecar Attachment, 26in. wheels, £4.		
Premier High-tension Magneto, new, 59/6.		
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FINE 26 by 2¼ Sidecar, like new, fixed; £4.—78 Rd., Leytonstone.

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COACH-BUILT Flexible Sidecar, upholstered by 2in. wheel; £2 15s.—17, Landcroft Dulwich.

RIGID Sidecar, 26in., left, quick detachable new condition; £3 15s.—Lewis, 23, Arde Handsworth.

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LIGHT Coach-built Sidecar, new, fit right rigid, 26 wheel, soiled, from the Show; co £12, will take £5 19s.

WE are sole makers of dust screens for sidec tricars; price 27s. 6d. complete; write for —Taylor's, patentees, Motor Works, Edmonton.

BEST Quality Side or Forecar, coach-built se green, with Cee springs; cost £8 10s., near 50s.—Motor, 36, Townhead St., Hamilton.

OUR Sidecars Talk. — New, with Michelin ty new clearance), £5 5s.; perfectly satisfacto second-hand, £3.—128, High Rd., Tottenham, 19 tenham.

12 Guinea Sidecar, brand new, and built thr with genuine Chater-Lea fittings, £6 8s.; Sunbeam cycle.—E. Mansfield, 59, Larkhall Lan don, S.W.

SIDECARS, best value in England, fit all moto prices £4 15s. and £5 10s.; fitting free; hands from £3 15s.; send for list from actual established 1882.—C. A. Edgar, 123, Holloway R don, N.

DID you see our sidecars everywhere taking ch the poll? Buy one now, and see if yo reach the pole; price £5.— Beware of imitation supply all the best trade houses. Agents wante not represented.—Oakleigh Sidecars, Ltd., 65a, R Rd., West Dulwich.

J. DAVIS, Automobile Engineer, Barnsbury N., begs to inform readers that he is the and sole builder of the protected double-seated illustrated recently in *The Motor Cycle*. This with tiller steering, is the last word in com motor cycling. Particulars and prices on applic

DID You Visit the recent Stanley Show?—If you have seen with admiration and heard th of unanimous approval of our new patent Hom sidecar, which, together with the cycle, stand, be wheeled about without detaching in the spac 26½in. Your own old sidecar converted into a garaged one for £1 17s. 6d. Send us yours; required.—Bramson and Co., 5, Farleigh Rd., Sto ington, N.

SIDECAR COMBINATION

ELEPHANT Motor Mart.—5-6h.p. G.B., Nala two-speed and free, every possible re and sidecar; 32 guineas.

ELEPHANT.—5-6h.p. Rex de Luxe, new 19 neto, Roc clutch, and Aubrey sidecar; £

ELEPHANT.—5-6h.p. Antoine, Norman two-s free, and cane Montgomery sidecar, epler ditioo: £28.

ELEPHANT.—5-6h.p. twin Rex (1907), and sidecar; 16 guineas.

ALL fully guaranteed; full specifications on —10 and 12, Elephant Rd., London.

TWIN Rex and Sidecar, magneto, H.B. contro new belt, tyres, twin back wheel, thoroug sell cheap.—Bradley, Abbey Villa, Kirkstall.

F.N. Sidecar Combination, 4½h.p., 4-cyl., e perfect, Chater-Lea sidecar; £24, great s Motorist, 86, Colvestone Crescent, Dalston, Londo

3½h.p. Humber and sidecar, splendid worki with brand new covers; £15, complete, o The Schools, Kilburn Lane, Kensal Rise, N.W.

2¾h.p. De Dion, H.B. control, Amac, torpe Clincher, £13 10s.; 2¼h.p. Minerva, go order, £4 10s.; 3½h.p. M.M.C., rigid sidecar, rare bargain; trial run anywhere; £20.—Radn Gray's Inn Rd., W.C.

REX Twin Model de Luxe, late 1909, not miles, grand condition, over £10 accesso additions, complete with Montgomery flexible attaches left side, no faults, this desirable con complete (machine only used by owner); £50 (I on-Thames).—Box No. L1,289, *The Motor Cycl* 20, Tudor St., E.C.

QUADCARS.

FOR Sale, Phœnix quad, very good condition offer £30 has it.—Webb, 37, Gt. St. Helens, gate, E.C.

8h.p. Phœnix Quadcar, twin water-cooled Fa speeds and reverse, splendid condition; £ 128, High Rd., Tottenham.

8h.p. Phœnix Quadcar, magneto, 2-cyl., Fafn cooled, new 650 by 65 car tyres back, Pal front, all spares.—B., 704, Fishponds Rd., Brist

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½ h.p. two-speed REX, new. What offers.
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-REVE, Druid forks, magneto, V belt £24 0
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½, 1906, spring forks, M.O.V. £14 10
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. THOMAS, a real good'un..... £7 10
Y, long bars, low seat £9 10
RANT, 2 h.p., low, 26in. wheels £8 10
IGH, 2 h.p., vertical £7 6
. MINERVA, splendid value £5 16

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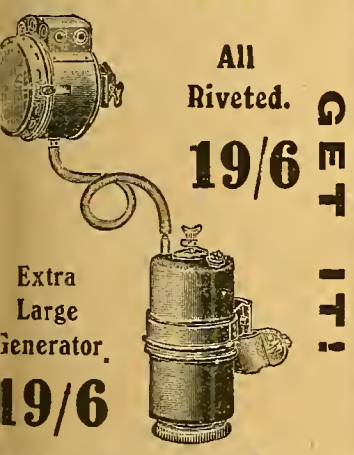

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RACER, 24in. wheel, 60 M.P.H. £30 0
Twin REX, spring forks £16 16
cyl. 4½ h.p., magneto and sp. forks.. £26 0
h.p. REX DE LUXE, two speed,
1 sidecar £48 0

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E HORNS, the latest 6/6
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Models B. & B., complete, new..... 25/-
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BBER-STUDDED CLINCHERS, **29/-**
SPECIAL LINE, 26 × 2½ TUBES, 4/6.

MOTOR TRICYCLES.

ARIEL Motor Tricycle, 3½h.p., two speeds, free engine, perfect condition; £10.—54, Ribblesdale Rd., Stirchley, Birmingham.

CARS FOR SALE.

8h.p. Ariel, 2-cyl., 4-seater, pretty little car; £38; must sell.—27, Kingsbury Rd., Dalston.

7-9h.p. Star, three speeds and reverse, 2 or 4-seater, 810 by 90 wheels, perfect; trial; £47 10s.—Below.

4½h.p. De Dion Phaeton, two speeds, perfect condition; £18 10s., or exchange.—128, High Rd., Tottenham.

12h.p. Duryea Car, with hood and two spare tyres, in good condition; £50, a bargain.—92, Myrtle Rd., Leicester.

PALMER.—16-24h.p. De Dietrich, tonneau, seats eight persons, splendid reliable car, beautiful condition; £55.

PALMER.—9h.p. nearly new 2-seater, best French make, raked steering, wheel control, perfect; £90.

PALMER.—6h.p. Phœnix, two bucket seats, twin-cyl., Peugeot engine; great bargain. £19.

PALMER.—16-20h.p. Mutel Landaulet, open or closed body, side entrance, grand car; £100.

PALMER.—40-50h.p. De Dietrich, side entrance car, latest model, fitted hood, screen; £325.

PALMER.—16-20h.p. De Dietrich, 5-seater, magneto, just re-painted, and ready to go anywhere; £75.

PALMER.—16-20h.p. Corre tonneau, hood, screen, head lamp, full equipment, spare tyre; £75.

PALMER.—12-16h.p. Aries, tonneau, genuine Aster engine, fast, reliable, and light car; £78.

PALMER.—15h.p. Darracq, 5-seater, hood, screen, push pedals, tyres like new, perfect; £95.

PALMER.—15-20h.p. Panhard Chassis, with lorry body, 4-cyl., good running order; £55.

PALMER.—12-14h.p. Humber, tonneau, Moseley perfect tyres, very smart car; £65.

PALMER.—16-22h.p. Gladiator, side entrance, long chassis, disc clutch, roomy body; £125.

PALMER.—9h.p. Jackson, 2-seater, bucket body, general condition like new; £85.

PALMER.—12h.p. M.M.C., tonneau, 2-cyl., good running order; clearance price, £35.

PALMER.—9h.p. taxicab, latest style, landaulet body, seating four inside, very smart; £150.

PALMER.—8h.p. Buchet chassis, late type, long stroke, fast running engine; £75.

PALMER.—16-24h.p. De Dietrich Chassis, late type, M.O.V., pressed steel frame; bargain, £85.

PALMER.—In stock at Tooting, one monoplane, 30ft. span, ready to receive engine; £75.

PALMER.—All above seen at L. N. Palmer's, 9a, Trevelyan Rd., Tooting. Garage one minute Merton Rd. tram terminus, Tooting. 'Phone, 208, Streatham. Photos, details. Easy terms. Exchanges.

ECLIPSE.—14-16h.p. Darracq, the 1910 speciality; immediate delivery; 225 guineas; old car part payment.

ECLIPSE.—18h.p. Siddeley, side entrance, hood, screen, dual ignition; a gift, £115.

ECLIPSE.—16h.p. Chenard-Walcker, side entrance, Cape hood, two ignitions, noiseless; £115.

ECLIPSE.—14h.p. Star, 4-cyl., M.O.V., side entrance, excellent order; £85.

ECLIPSE.—14h.p. Formaa, 4-cyl., M.O.V., side entrance, new condition; bargain, £105.

ECLIPSE.—14h.p. Pritchett and Gold, 4-cyl., steel frame, hood, excellent order; £72 10s.

ECLIPSE.—12h.p. J.P., 2-cyl., long chassis, side entrance, hood, perfect order; £80.

ECLIPSE.—10-12h.p. Gnome landaulet, four seats, splendid order; £87 10s.

ECLIPSE.—10-12h.p. Aster, side entrance, screen, hood, steel frame, guaranteed; £65.

ECLIPSE.—6h.p. Siddeley, 2-seater, steel frame, reliable and good; £42.

ECLIPSE.—6h.p. Swift-Ne Dion, 2-seater, hood, perfect order; £38.

ECLIPSE.—10-12h.p. Star box delivery van, very good order; £60.

ECLIPSE.—8h.p. De Dion, genuine, two speeds, tonneau, in pink of condition; £72 10s.

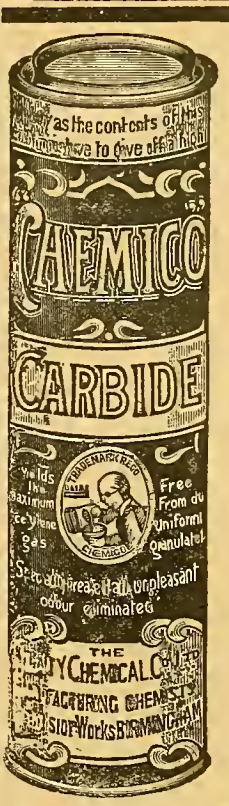
ECLIPSE.—6½h.p. Darracq, 2-seater, reliable little car; £22.

ECLIPSE.—6h.p. Quadrant Carette, coach-built, two speeds; £20.

ECLIPSE.—8-10h.p. Rexette, 3-seater, very fast, excellent condition; £29.

ECLIPSE.—3½h.p. Raleighette tricar, two speeds, water-cooled, splendid order; £20.

ECLIPSE.—5½h.p. Rex Triette, 2-cyl., very fine machine; £20.—Eclipse Engineering and Motor Co., 255, Earlsfield Rd., Wandsworth. 'Phone, 1135 Putney.



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Used by every motor cyclist who has the best interests of the engine at heart. Incomparable in result.
Quart Tins, **1/8** each.

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Not a liquid messy line. Placed in cut or gash, it makes a perfect union and a permanent repair. Halves the tyre bill.
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3 shapes, 5 sizes. Each patch faced with pure Para rubber, ensuring perfect adhesion.
From **1/2** to **14/-** per dozen patches.

Of all motormen, and by the Trade of all Factors.

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TO ALL MAKES OF

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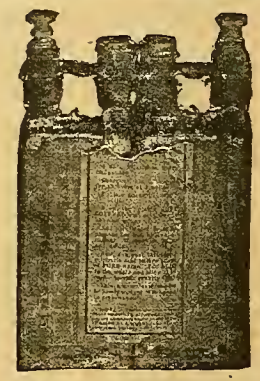

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CPR

CARS FOR SALE.

NYE'S!—6h.p. Vauxhall, three speeds and reverse, Calmon tyres, sound order; £18.—69, Leather Lane, Holborn.

REGAL, smart 2-seater, 6h.p. genuine De Dion, three speeds, excellent order; £37 10s.—406, Garratt Lane, Earlsfield.

PANHARD, 15-20h.p., 4-cyl., 5-seater; £120; accept smaller car, or motor cycle, in part.—Capt. Hyne, Brunswick Sq., Camberwell.

REO, 16-20h.p., side entrance, late model; £75, recently valued at £130.—Sergeant-Major Tunbridge, Field Cottage, Dennett's Rd., S.E.

10-12h.p. 5-seater, tonneau, perfect condition; £50; motor cycle, tricar, or small car part payment.—28, Grove Lane, Stamford Hill, N.

6h.p. Panhard, 2-seater, three speeds, reverse, excellent condition, tyres as new; £12; exchange motor cycle.—Gaines, 322, Burley Hill, Leeds.

10-12h.p. 2-cyl. Horbick Car, live axle, tonneau body, Cape hood, lamps, horn, etc., splendid order; £35.—Elliott, 26a, Park Rd. N., Acton, W.

DARRACQ, 7-9h.p., single-cyl., detachable tonneau, enclosed radiator, lamps, tools, etc., in good condition; bargain, £55.—14, Regent Grove, Leamington.

6½h.p. Vauxhall, two speeds, reverse, chain drive, Dunlop tyres, artillery wheels, 2-seater, go anywhere; £20, or exchange magneto bike.—Wallace, Clarence St., Kingston.

10-12h.p. Tony-Huber, twin, long chassis, side entrance, new condition; £25 cash and new push cycles or M. cycles, value car £75.—G. Edwards, High St., Towcester.

10-12h.p. Pick 4-seated Car, 2-cyl. engine, been standing in coach-house over a year; must sell; £20, or exchange motor cycle.—Apply in first place, Turvey and Co., Garage, Sunderland.

10-12h.p. M.M.C., Daimler 2-cyl engine, roomy tonneau body, make a splendid van up to one ton; must clear; £35, or exchange Triumph motor cycle. — Turvey and Co., Motor [illegible], Sunderland.

SMALL 4-Seater, 7h.p., smart and silent, in splendid condition and running order; can be seen any time; £30; lightweight motor bike wanted perhaps as part exchange.—E., 41, Montagne Rd., Hounslow.

SMART Modern 4-cyl. Forman Car, 2 or 4-seater, live axle, expanding brakes, forced lubrication, very fast and powerful, grand order; £75; Triumph motor cycle part payment.—P. Riddelsdell, Boxford, Suffolk.

INEXPENSIVE Reliable Cars, in sound condition. The best show in South London. Write for full details or telephone us. Each of the following is a bargain at out-of-season prices.—Sully, 10, Old Town Clapham, S.W.

MINERVA, 10h.p., 2-cyl., 2-seater, hood and screen, £38; Speedwell, 10-12h.p., 2-cyl., 4-seater, £58; Deschamps, 10h.p., 2-cyl., 4-seater hood, four speeds, £38; New Century, 10h.p., 4-seater, £33; De Dion-Renault, 4½h.p., 2-seater, £19; Coventry Progress, 10 h.p., 2-cyl., 4-seater, £38; Oldsmobile, 9h.p. (modern type), single-cyl., 4-seater, very handsome car, £38.

ALL Above can be guaranteed to give satisfaction.—Sully, 10, Old Town, Clapham, S.W. 'Phone, 1781 Battersea.

INSURANCE.

PLEASE send for reduced rates for 1910 policy; personal 5s., inclusive 18s. per annum.—Bass, insurance broker, Ongar.

INSURE Your Motor Cycle with Hugh J. Boswell, insurance broker, Norwich, at greatly reduced premiums; fire 2s. 6d.; accidents to cycle 14s. 6d., third party 7s., theft 9s. 6d., inclusive policy 18s.—Please write for particulars.

EXCHANGE.

EXCHANGE good C.A.V. accumulator for 2 rubber belt.—Jeweller, Selsey, Sussex.

SILVER English Lever for 8ft. 3in. Whittle belt.—Pawson, Eldon Lane, Bishop Auckland.

BILLIARD-DINING Table and two-speed cycle for motor cycle.—28, Grove Lane, Stamford Hill.

2¾h.p. Pebok, chain drive, free engine, and push cycle, for higher power.—785, High Rd., Leytonstone.

OLIVER Typewriter, in fine condition, with cover; exchange for motor cycle.—130, Brixton Rd., S.W.

NEW 1910 Douglas, for 1909 Phelon or other good passenger combination.—84, Rodenhurst Rd., Clapham.

6h.p. Beeston Humber, smart 2-seater, hood, screen, Stepney; £44; cycle part.—20, Potternewton Lane, Leeds.

NEW Condition.—1908 Triumph, Mabon clutch, and cash, for 1909 free engine Triumph.—Connell, The Park, Newark.

GRAMOPHONES, records, cycles, for motor cycle, magneto, good make; also sidecar.—54, Bohemia Rd., St. Leonard's-on-Sea.

1909 3½h.p. N.S.U. for 1909 Triumph, P. and M., or Zenith Gradua, cash adjustments. — "Glenville," Alcester Rd., Moseley.

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BELT

THE MOTOR CYCLE SUPPLEMENT

Motor Cycle and Cycle Show at Olympia.

At a meeting of the Show Committee of the Cycle and Motor Trades' Association, held on Wednesday last, the 26th inst., the offer of the Society of Motor Manufacturers and Traders to lease Olympia to the C. and M.T.A. for the purpose of holding a motor cycle and cycle show in November next was favourably received, and it was unanimously decided to proceed with the necessary arrangements. The decision of the C. and M.T.A. committee means that next November we may have three motor and cycle shows in London. It is probable that the car show will precede the Stanley, the date of which is November 11th to 19th, and the C. and M.T.A. Show will follow the Stanley.

In last week's supplement we referred to the "Association of Motor Cycle Manufacturers and Traders," but Mr. J. R. Nisbet reminds us no such association ever existed. What did happen was, at the last Stanley Show a proposal was mooted to form such an association, but it never got beyond the chrysalis stage, and, as we stated last week, the interested parties have now joined forces with the Cycle and Motor Trades' Association. Mr. Nisbet begs us to state that he hopes every motor cycle firm will immediately apply for membership of the Cycle and Motor Trades' Association, and so make that body strong as well as fully representative.

British Motor Cycle Racing Club.

The first A.G.M. was held at Carlton House, Regent Street, W., on Thursday last. Owing to the absence of Major F. Lindsay Lloyd (the president of the club), Col. H. C. L. Holden took the chair. After Mr. T. W. Loughborough, the newly-appointed hon. sec., had read an account of the doings of this active body, and the reports of three general meetings, the Chairman read the annual report, and then referred to the accounts, both of which were adopted. Mr. Loughborough was elected hon. sec., Mr. A. G. Reynolds hon. treas., and Mr. A. S. Ross hon. auditor. H.S.H. Prince Francis of Teck, K.C.V.O., D.S.O., is patron of the club, Mr. Locke King is vice-patron, and Col. Holden, R.A., F.R.S., president. The 1910 committee consists of Major Lindsay Lloyd (chairman), Messrs. Straight, Tessier, Hardy, and Pratt. It was unanimously agreed that a hearty vote of thanks be accorded to Mr. A. G. Reynolds for his past services in the interests of the club, and that the club sincerely regretted his ill-health, and that the wishes of the club for his speedy recovery be conveyed to him. One of the newly-designed B.M.C.R.C. medals is to be presented to Messrs. Reynolds and Ebblewhite as a small recognition of the splendid honorary work carried out by these energetic members, to whom the club owes its origin and success.

A.C.U. QUARTERLY RELIABILITY TRIALS. A quartette of competitors in Saturday's event. The machines are a Moto-Reve, Triumph, Wanderer, and Bradbury—all 1910 models. Inset, a competitor climbing Rectory Hill, Amersham, one of the test hills.

A.C.U. Quarter

THE Quarterly Trials of January, 1910, will be handed down to posterity as being famous for two reasons, firstly, the record number of entries (seventy-four were received), and secondly, because the weather and road conditions were of the worst. It had poured in torrents all the previous night, but at some early hour, when all good motor cyclists should be in bed, it froze and rendered the roads a sheet of ice. Of the splendid entry above referred to, the number of non-starters was exceedingly small, of these we may mention A. L. Onimaney (3½ Rex), F. J. Ellis (Matchless), who had an accident before the start, and F. W. Parnes (3½ Zenith), who was suffering from a chill.

A few minutes before the start a leakage from the petrol feed pipe of M. Geiger's V.S. caught fire, but was quickly extinguished.

At 9 a.m. on Saturday last, the following competitors were started from the Chequers Hotel, Uxbridge, by H. P. Beasley and W. H. Wells:

A string of competitors ascending Dashwood. The foremost rider is E. Kickham.

MOTOR BICYCLE AND TRICYCLE CLASS.

*Miss L. Berend (2 Moto-Reve)
*W. Cooper (3½ Bradbury)
*E. Leighton (3½ Triumph)
W. Pratt (3½ P. and M.)
W. W. Douglas (2¾ Douglas)
P. Phillips (2¾ Douglas)
G. Lee Evans (5 Indian)
*W. O. Bentley (5 Indian)
*J. S. Harwood (3½ P. and M.)
H. G. Bell (2¼ F.N. tricycle)
F. A. Applebee (3½ Rex)
*W. A. Lockwood (3½ P. & M.)
*B. A. Hill (2¾ Douglas)
*G. T. Gray (3½ N.S.U.)
T. Silver (3½ Quadrant)
A. T. Stanton (3½ Bradbury)
F. W. Applebee (5 Rex)
J. Gibson (5 Indian)
*E. Kickham (2¾ Douglas)
Eli Clark (2¾ Douglas)
F. A. McNab (3½ Trump)
J. H. Slaughter (3½ Ariel)
J. Holroyd (1½ Motosacoche)
*S. A. Whitham (3½ Triumph)
E. Stanley (3½ Premier)
B. Jones (3½ Premier)
F. Savory (3½ Premier)
F. Brown (3½ Excelsior)
R. Lord (3½ Excelsior)
*F. Thomas (6-7 G.O.K.)
*H. Bevir (3½ L.M.C.)
A. L.Barker (3½ Clyde)
*F. H. Stevenson (3½ Triumph)
*N. Kennedy (7-8 Bat)
C. J. Janssen (2 Moto-Reve)
*Howard Smith (3½ Triumph)
*G. L. Andrews (2½ Moto-Reve)
J. W. Leno (3½ P.M.C.)
S. C. Perryman (3½ James)
G. Allen (3½ James)
V. Underhill (3½ L.M.C.)
G. L. Fletcher (2¾ Douglas)
A. Oberlander (2½ N.S.U.)
*H. G. Partridge (3½ N.S.U.)
W. Ayling (3½ Midget Bicar)
*G. H. Lake (3½ P. and M.)
D. R. Clarke (3½ James)
W. Pershke (5 V.S.)
Eric S. Myers (3½ Scott)
F. Phillip, (3½ Scott. 2-stroke)
R. J. Bell (2 Moto-Reve)
J. Marshall (3½ Triumph)
W. F. Newsome (3½ Triumph)
C. T. Ringham (3½ Scott)
C. Dear (1½ Wanderer)
A. V. Deacock (3 Wanderer)
F. Smith (5-6 Clyno)
Howard Newey (3½ Norton)
*H. A. Cooper (2¾ Douglas)
J. V. Robinson (2¾ Douglas)
*C. Pattison (2 Moto-Reve)
*H. H. Bowen (5 Indian)
*P. M. Pridmore (3½ Triumph)

PASSENGER MACHINES.

*J. Tassell (8 Matchless)
M. Geiger (7 V.S. and sidecar)
A. G. Fenn (5 A.C. tricar)
H. C. Griffin (3½ Premier and sidecar)
*A. R. Abbott, jun. (8 Matchless and sidecar)
J. Portwine (5 A.C. tricar)
G. N. Higgs (5 A.C. tricar)
F. Eagles (6 N.S.U. and sidecar)

*Private owners.

At the start the weather was fine and the roads passably good, save where ruts and ice rendered them otherwise. However, at the foot of several of the hills the surface was most treacherous, and on Dashwood it was in an even worse state than it has ever been before on the occasion of a trial, as the road was practically covered with ice. As is usual on these occasions, the men were all stopped at the foot of the hill and restarted separately, their starting times being taken by A. V. Ebblewhite. Starting, however, on the ice-covered road was easier said than done. Many a man had a tumble, and one, so rumour had it, hurt himself rather badly. These frequent falls account for nearly all the failures on the hill. At the time of the hill test the weather was fine, but the summit was covered with a thin layer of frozen snow, while the cold and rather brisk wind was against the competitors. Considering the exceptionally adverse conditions, the men did marvellously well. As far as could be seen, the star performances were made by W. Pratt (who made a fine ascent, though impeded by another rider), Gibson, Evans, Bentley, Bowen, Marshall, Newsome, Myers, F. Phillip, and Kennedy. A. R. Abbott climbed Dashwood in excellent form, but most of the other passenger machines were troubled with the back wheel slipping. Miss Berend duly arrived at the foot of Dashwood, but was persuaded not to attempt the climb on account of the treacherous surface.

The following riders pedalled: Leighton, Douglas, P. Phillips, H. G. Bell, Hill, Gray, Andrews, Fletcher, R. J. Bell, Dear, H. A. Cooper, Robirson, and Pattison. It will be noticed that nearly all these are riders of lightweights. The following dismounted, nearly all through slipping: Stanton (fell, hurt elbow, and retired Aston Rowant), McNab, Slaughter, Holroyd, Janssen, Partridge, Ayling, Pershke, and Deacock. Eagles failed through the back wheel spinning round on the frozen surface.

Full marks
the undermen
Douglas, P. P
H. G. Bell, F
Applebee, C
Savory, Bro
Stevenson, K
Leno, Allen
Myers, Phill
Ringham, D
A. Cooper, F
Geiger, Griff
Ayling obt
and D. R.
After leavi
tinued their
route. All a
of Aston R
frozen ice a
commenced,
ously greasy
very well ma
The comp
and Deddi
troubles, La
ally unfortu

R. J. Bell passing H. G. Partridge, who had skidded completely round. This o Bletchingdon a few miles from Islip.

iability Trials.

enced bad skids at Bletchingdon, and subsequently Pershke retired owing to magneto troubles.

The Hour Luncheon Stop.

The competitors commenced to arrive at the Red Lion, Banbury, at 12.20 p.m., and thereafter there was a practically continuous stream of riders entering the hotel yard, lunch being served immediately on their arrival. The checkers had a busy time dealing with such a large entry, and by the time the cards were all handed in, the first two or three competitors were ready for the return journey. The following riders lost marks through making adjustments to their machines in the control: C. Pattison (10m. repairing oil pump) and J. S. Harwood (15m. repairing puncture). T. Silver and F. A. McNab retired owing to falls on the outward journey. Fenn arrived very late, as also did Ringham and Dear, who reported having missed the route.

W. O. Bentley arrived at Banbury with the foot-rest of his machine badly bent, owing to a bad skid, but he told us he managed to keep in the saddle and prevent his machine from falling completely over.

The return journey was as usual, *viâ* Adderbury, Aynho, Bicester, Amersham (where the second hill test took place) and Uxbridge.

The surface of Rectory Hill was perfect compared with Dashwood, but hardly what might be called ideal, as several greasy patches had to be negotiated during the ascent. Wind blew up the hill, and there was a large crowd of spectators.

The following riders obtained full marks on Rectory Hill: Leighton, Pratt, Douglas, P. Phillips, Lee-Evans, Bentley, Harwood, Bell, Applebee, jun., Hill, Applebee, sen., Gibson, Whitham, Stanley, Joncs, Savory, Brown, Lord, Thomas, Kennedy, Janssen, Andrews, Fletcher, Phillips, Marshall, Newsome, Ringham, Deacock, F. Smith, H. A. Cooper, Robinson, Pattison, Bowen, Pridmore, and Abbott. Gray obtained eight marks, Bevir and Smith four marks, Dear two marks, Newey four marks, and Geiger five marks.

ashwood. Most of the fastest competitors had perforce to adopt the above tactics in hill-climbing to prevent a fall on the frozen road surface.

The Results.

The following is a record of performances of the various competitors:

R. Lord made a non-stop run; Thomas, non-stop, but took wrong turning; Bevir broke belt, and ran out of petrol; Barker dismounted Rectory and Chesham hills; Stevenson, side-slip, and failed Rectory Hill; Kennedy, non-stop, except three for traffic; Janssen, two stops, chain came off; H. Smith, failed Rectory Hill; Leno, side-slip, and failed Rectory Hill; Perryman, retired, broken valve gear; Allen, retired, broken exhaust cam; Underhill, belt troubles; Fletcher, non-stop; Oberlander, side-slip; Partridge, retired after side-slip; Ayling, one plug two traffic stops; D. R. Clarke, one stop Rectory Hill; F. Phillip, non-stop; Marshall, puncture, and forced on to a bed of stones by a car;

Preparing to leave Banbury after the luncheon interval.

Newsome, non-stop; Ringham, side-slip, and ran out of petrol; Deacock, fell at Dashwood; F. Smith, non-stop; Newey, dismounted Rectory Hill; H. A. Cooper, non-stop; Robinson, one side-slip; Pattison, traffic stop, and repaired oil pump; Bowen, two traffic stops, broken chain; Pridmore, non-stop; Geiger, reported non-stop; W. Cooper, thrown off at Dashwood by a rut, and failed on Rectory Hill; Leighton, punctured, and side-slipped; Pratt, side-slipped on Dashwood; Douglas, ran into a ditch, and broke belt; P. Phillips, traffic stop; Lee-Evans, three traffic stops; Bentley, traffic stop; Harwood, puncture, and dismounted owing to grease; Bell, two stops, wet on magneto; Applebee, jun., non-stop; Lockwood, retired, gear trouble; B. Hill, sooted plug; Gray, puncture; Gibson, traffic stop on Dashwood, and allowed second attempt; Kickham, side-slip, valve trouble, and failed on Rectory Hill; Clarke, stopped on Dashwood and Rectory hills; Slaughter, skidded on Dashwood, and failed on Rectory Hill; Holroyd, skidded on Dashwood, broke pedal, and failed on Rectory Hill; Whitham, non-stop; Stanley, two traffic stops; Joncs, non-stop; Savory, non-stop; Brown, non-stop; both the latter took wrong turning, and are said to have failed on Rectory Hill; Griffin, shortened belt, and tightened petrol union, failed on Rectory Hill through a slipping belt; Abbott, broke a belt fastener; Portwine, upset through a side-slip; Eagles, failed on Dashwood, belt trouble on Rectory Hill. At 7.25 p.m. all the starters had arrived at Uxbridge except McNab, Lake, Myers, Tassell, Fenn, and Higgs.

CLUB NEWS.

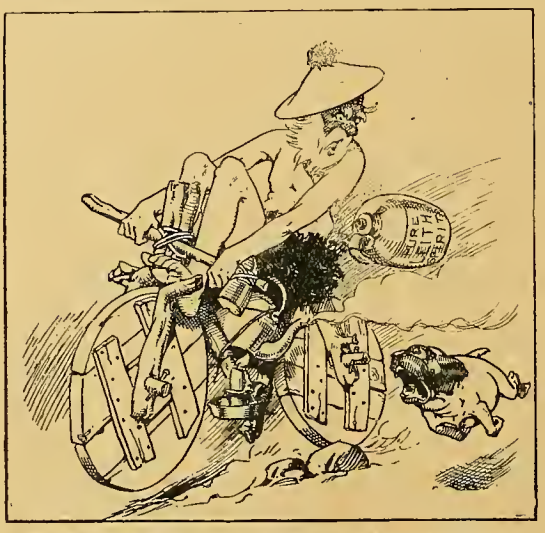
Edinburgh M.C.C.

The fourth annual dinner and presentation of prizes was held in the Carlton Hotel, Edinburgh. Members and their friends attended to the number of between fifty and sixty.

Mr. N. Macmillan, the president, was in the chair, and gave the toast of "The King," after which Mr. Bilbe proposed "The Edinburgh Motor Cycling Club," and congratulated the members on its well arranged competitions, and especially the way the Five Days' Trial had been carried out. Mr. McGregor replied.

Mr. Macallum then proposed "The Prizewinners" in a very interesting speech, which was replied to by Mr. Tolfree. "Other Clubs" was proposed by Mr. A. Allan Hay, the reply being given by Mr. Craig, of the Falkirk club. "Our Guests" was then proposed by Mr. E. L. Matthew, the captain of the club, and Mr. Geo. Hume, ex-president of the Scottish Amateur Athletic Association, replied thereto.

Songs and recitations were interspersed with the toasts, and those present spent a most enjoyable evening.



Design on front cover of menu card of the Edinburgh M.C.C. fourth annual dinner.

Bolton and District M.C.C.

The annual dinner will be held at headquarters, Pack Horse Hotel, on Wednesday next, February 2nd, tickets 3s. each. After the dinner Mr. A. E. Bennett will give a lantern lecture on "Magnetos," when it is hoped there will be a large attendance. Dinner, 6.30 p.m. Lantern lecture, 8 p.m.

Sutton Coldfield A.C.

Mr. Arthur E. Bennett lectured to the members on "Magnetos" on the 22nd inst. A good attendance was recorded, and the audience followed the lecturer with great interest from start to finish.

North-west London M.C.C.

The following fixtures have been arranged: Easter, inter-team trial to Harrogate and return with the Herts County M.C.C. May 7th, London-Coventry-London twelve hours run. June, inter-team trial with Herts County M.C.C. July 23rd, inter-team trial competition with the Oxford M.C.C.

Members are asked to communicate their intention of attending the club whist drive on Wednesday to Mr. Williams, 6, Kenmare Mansions, N.W., as soon as possible.

Herts County A.C. (M.C. Section).

A most varied and attractive programme has been arranged for 1910. The opening run is fixed for March 12th, after which the new clubroom will be opened and a smoking concert held.

The Service Co., High Holborn, London, have kindly offered a silver challenge cup or a shield, which is to be competed for in a long-distance inter-team trial.

Western District M.C.

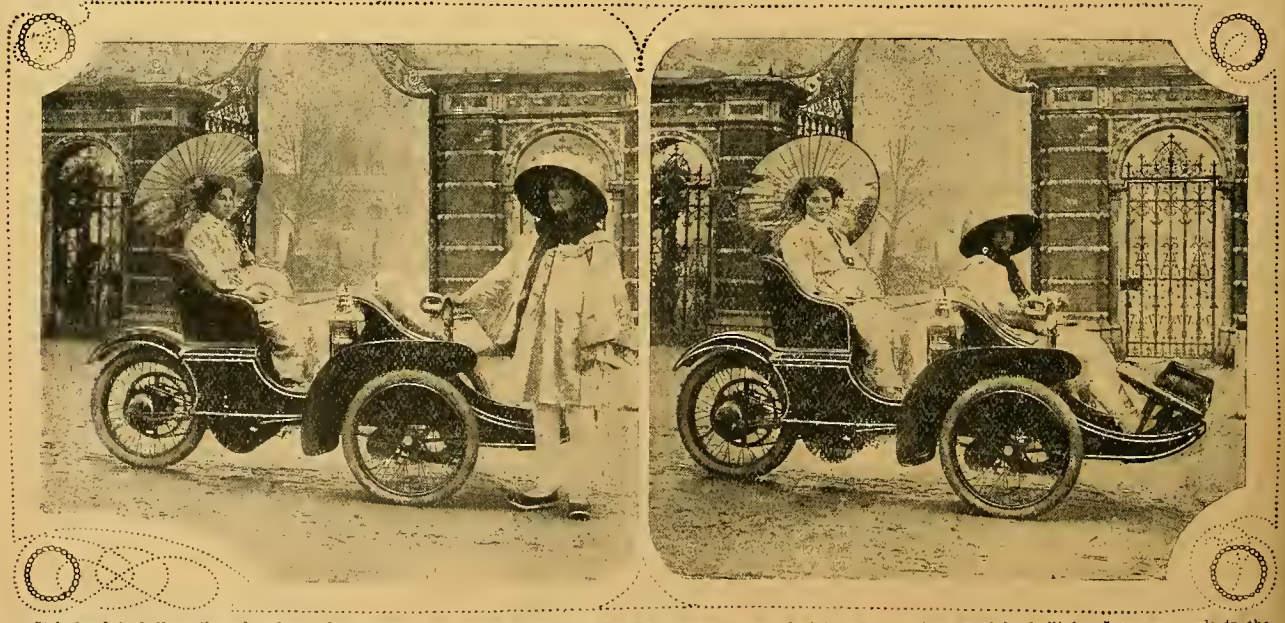
Mr. F. H. Mullett, who has devoted much of his spare time to the interests of the above club, has resigned the secretaryship. Mr. Mullett has worked untiringly to increase the membership of the club, and he has witnessed the membership grow from 38 in 1908 to the present total of 88. The new hon. sec. is Mr. I. J. G. Babbage.

Warrington and District M.C.C.

The annual general meeting for election of committee and officers, audit of accounts, will take place to-morrow at the Lion Hotel at 8 p.m.

Nottingham and District M.C.C.

Owing to the date of the whist drive clashing with the date of the General Election, the whist drive has been postponed until Friday next, February 4th.



It is hard to believe that the above photographs were taken in dirty, grimy old London. They depict an A.C. Tricar specially built for Japanese roads to the order of Mr. R. Sumi, Osaka, Japan. We had the pleasure of a visit from Mr. Sumi the other day, and next week shall have more to say regarding the tricar, and the riding conditions of Japan.

THE MOTOR CYCLE

Vol. 8. No. 359. Feb. 7th, 1910.

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The Quarterly Trials.

PROBABLY not one single day of the whole year could have provided a more severe all-round test for a motor cycle than Saturday, January 29th, for the riding conditions were of the most trying description. A great many people imagined beforehand that the trial would be postponed, and it says much for the dogged pluck and skill of the competitors that so many non-stops were recorded. Again the results have demonstrated the usefulness of the trials, this time in connection with side-slipping and tyres. It is well known that steel studded covers are most efficient and thoroughly trustworthy in the most treacherous grease, but on ice-covered roads they were proved to be inadequate as anti-skids—in fact, accentuating side-slips. For all round work, that is, on ice-covered roads, muddy surfaces, and speed on dry roads, the palm must go to the all-rubber non-skid, many varieties of which were used with success in the trials referred to. We have closely analysed the results with the object of determining if any one type of motor bicycle stands out above the others when used under wintry conditions, but this does not seem to be the case. A good percentage of lightweights and heavyweights finished successfully, although we formed the opinion on the day of the trial that lightweight riders were having the most enjoyable time. Failures on the test hills were more numerous than one would wish, despite the fact that the competitors were once again stopped at the foot of each hill and the engines allowed to cool before tackling the ascent. However, it is difficult to draw comparisons, as the conditions admittedly have never been so bad. Finally, a word of praise is due to the promptitude of the A.C.U. judges, who issued the hill-climbing results the same evening, and the complete results in time for this issue.

The Buyers' Guide.

THE special feature of this issue is The Buyers' Guide, which consists of four pages of specifications of all motor cycles on the British market. The popular trend of design is noticeable from the Guide. For instance, the mechanically-operated inlet valve is very much more popular than the automatic type, and magneto ignition is so universally fitted to motor cycle engines that one could almost say that battery ignition is dead. Out of 169 machines, 161 are provided with magnetos, and only four have batteries. The ignition is optional on the remainder.

Belt drive is still the favourite form of transmission, and change-speed gears (denoted in the Guide by the word "variable" to distinguish them from adjustable pulleys) are gradually making headway. A large number of machines are fitted with adjustable pulleys, and probably by the time the 1911 Guide is issued they will be as universal as the magneto. The diameter of wheels varies so little that only eight machines diverge from the standard of 26in. diameter—two of these are ladies' machines and one a powerful tricar.

Nearly every machine has a spring front fork as standard, or it can be supplied to order. The few which have rigid forks are almost without exception either racing machines or lightweights.

Of twin-cylinder models the V type is an easy first. Passenger machines sold as complete vehicles are fewer in number than in previous years, which is to be accounted for by the popularity of the sidecar.

A Lady Motor Cyclist in Central Africa.

WE travelled in the same ship to the East Coast of Africa, but nobody, and myself least of all, could then have guessed how well acquainted we were destined to become. For it was a Triumph 3½ h.p. motor cycle, and I was a woman who previously had ridden nothing more spirited than a drop frame pedal bicycle.

We left the ocean steamer at the mouth of the Zambesi River, and, after a week's journey into the interior, arrived together in Nyassaland. Then our troubles began, but before relating them I must explain briefly why it was that I thus unexpectedly took to motor cycling in Central Africa.

Thirty Motor Cycles in Nyassaland.

There are, as far as I can remember, at least thirty motor bicycles in the country. This is a large number when you consider that the white population numbers only six hundred persons, and that the first macadamised road is only now being constructed. At present, however, except for one hundred miles of railway, motor bicycling is the only mode of quick travel available, and is most useful wherever there exists a fairly good earth path. It quite revolutionises the old ideas of distance by its extreme contrast to the other means of transport for which only human labour is at present available!

All this information I gathered soon after arriving in the country, and I was told, moreover, that besides being much less tedious than any other way of getting about, motor bicycling was also by far the least tiring—an important consideration in a tropical climate. I was strongly advised to learn to ride, and when I found that by this means I should, even when living in Zomba, the chief town, be enabled to get some big game shooting, my last doubt vanished, and I determined at all events to try.

Then it was, I repeat, that our trouble began, and we both suffered to some extent, though it was more often the Triumph that required doctoring than I did after our mutual encounters.

Early one brilliant morning, before the sun became too hot, I took a man's old pedal bicycle, and, choosing the croquet lawn, as being possibly softer to fall upon, I practised mounting from the pedal. There was not much difficulty about that, so the Triumph was next led out, its hissing breath filling me with awe. The various levers having been explained, I was instructed to push the ponderous thing along. Suddenly it came to life, almost leaping out of my hands, and I hurriedly lifted the exhaust lever.

"Why did you not get on? It is much lower than the pedal bicycle," said my teacher. "I will next time," I panted, and, in fact, I managed to do so.

For the next half hour I had a strenuous time, starting the bicycle and attempting to mount, usually with success. The sun was getting high, and I began to think this the most heating occupation it was possible to devise! Once more, and for the last time, I gave a vigorous push, the engine began firing, and I got my foot half on to the pedal. It slid off, however, and I lost my balance. The bicycle slipped out of my grip, and, as I fell to the ground, I saw it sail off by itself with a most determined air. It looked very fine I thought as it bowled along, but its owner, who wanted to catch it before it fell, was rushing after it, and for a few exciting moments it was anybody's race. In the end, the bicycle, eluding capture, swung round in a graceful curve, overbalanced, and fell heavily to the ground.

How I Enjoyed the First Ride.

The next morning the Triumph and I went out along the road. The start downhill presented no difficulty. Then for several miles I flew along before I could bring myself to stop, so delightful was it to be carried along by the powerful little motor. At last I pulled up, dismounted, and turned the machine round. Now for another attempt to run alongside and jump on! Running the bicycle along I tried to put my foot on the pedal quickly, but the attempt ended in failure, and we both fell down on to the hard dusty road. A bruised elbow and a bent foot-rest were the sum total of damages, but not disheartened, we were soon ready to try again. This time I resolved to be more cautious and to get someone to start me with a push. I called to the little group of natives, who had, of course, sprung up from nowhere, and were looking on with open-mouthed interest at my antics. In those days my knowledge of the native language was of the slightest. Still I managed to persuade one of the bashful creatures to come nearer and push behind the bicycle by taking hold of the luggage carrier. He trembled with fear lest the engine should go "bang." Sitting on the saddle I cried out "Koka!" and immediately the bicycle lurched backwards, I was nearly shot over the handle-bars, but just managed to keep

The writer, Miss M. Bridson on her borrowed mount.

A Lady Motor Cyclist in Central Africa.—

he machine upright. I was rapidly becoming annoyed t such stupidity when I suddenly remembered that had used the word for "pull" instead of that for push!" We began again; this time I said "Kanka," ll went well, and in a few seconds I was whizzing ily back to Zomba. When I arrived there my friend, ho had not expected me to be away so long, was ending out a machila to bring in he remains!

After this I had many a delightful ide, and seldom met with any serious ifficulties. On a good road mount- ng was easy, and where the path was ad or very narrow there was usually native willing to give the bicycle a ush, though he would often nearly pset it in his well meant efforts.

A motor bicycle nowadays creates omparatively little amazement mong the natives of Nyassaland. hey call it "Jinga," a corruption, believe, of the word engine. The boy" who looked after the riumph squatted near it all day, and kept it most xquisitely clean; the secret of its engine, however, was utterly beyond the power of his imagination to onceive.

How natives transport a motor bicycle in Ce tral Africa.

It was to me, too, very much of a mystery—in fact, rode in a state of blissful ignorance; and if anything ad occurred harder to put right than the breaking of sparking plug or the puncturing of a tyre, I should ust have had to drop the bicycle by the roadside and et home myself in some other way. This proceeding ould have been taken quite as a matter of course in Nyassaland, where no one ould or could have stolen he machine, and where a ew men would easily carry home for you, suspended rom a pole. Motor bi- ycling in Central Africa as, of course, special ifficulties of its own; but, xcept in the thorn tree dis- ricts, there is little fear of unctures in a country where either nails nor sharp tones are to be found on he roads. The roads are imply made of hoed and eaten earth. Now and hen, however, the surface s excellent, and a burst of peed may be enjoyed. But good stretch of road must ever lull your watchfulness o sleep. At any moment he spring forks may clash s you bump over an un- oticed rock just cropping hrough the earth; the road may suddenly narrow to a ath six inches wide; a tree may have fallen across he track; or the bridge at the bottom of a steep escent may have become a row of unconnected logs! The chief dangers, on the whole, are the patches of soft hick sand which occur in places. I went for a ride one day near Lake Nyassa, and the road frequently became nothing but a bed of dry yielding sand. It was extremely difficult to keep the front wheel straight and avoid a side-slip, for considerable strength of arm is required in such circumstances. But each time the bicycle got through all right, and I greatly enjoyed my long ride among the palm trees.

A machila (or hammock slung from a pole carried on men's shoulders) when encountered on the road is almost as difficult to negotiate as a stretch of sand. The two men carrying the front and rear ends of the pole would, when they heard the bicycle, invariably make for opposite sides of the road, causing the long machila to extend right across the path. Then, realising the situation simultaneously, they would quickly change sides, and so on *ad infinitum*, sometimes until you were forced to dismount before they arrived at a mutual understanding. On one occasion the men lost their heads even more completely, and, dropping the machila on the road, they vanished instantaneously into the bush. Choosing the lesser of two evils, I steered the motor bicycle over pole and hammock, but, fortunately for all concerned, there was nobody inside.

Nearly every one of my motor bicycling expeditions was enlivened by some unexpected incident. One day I met strange creatures on the road. First a mongoose dashed across, then I ran over a quickly wriggling snake, and here and there a thick black stream across the road showed that a migration of ants was taking place. On another occasion the machine and I seemed unable to remain upright for long together. I was riding out for a morning's shoot, for there is not much big game within fifteen miles of Zomba. The air was bitterly cold when I set out just before sunrise, and after a mile or two I was so numb that to warm myself I got off and ran briskly a short way alongside the bicycle. Then it was that when I was panting from the run and still stiff with cold I let the heavy machine overbalance, and drag me over on top of it. I succeeded in raising it up, and all went well for the next few miles. Then I tried to mount on a very narrow path with a deep ditch at one side. In a moment of aberration, caused I suppose by the effort of getting on, I forgot to steer. At any rate, I soon

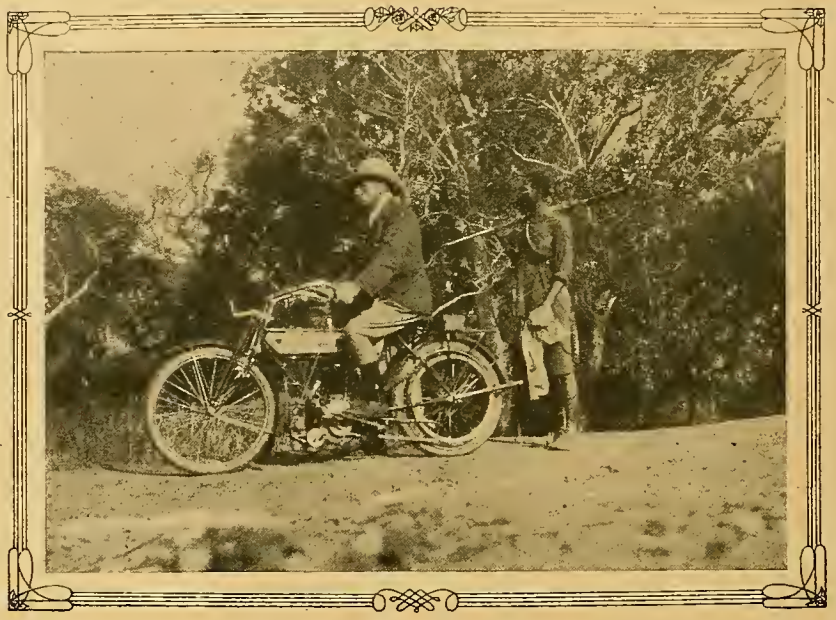
The only motor car in Nyassaland—an 8 h.p. Rover.

Found Myself in the Ditch.

The bicycle this time was "top dog," and its racing engine sounded very angry. A native who was near

A Lady Motor Cyclist in Central Africa.—

by and saw the incident came running up, groaning loudly with dismay. There was not much wrong, however, twisted handle-bars and a scraped shin being the extent of our injuries, and, remounting once more, we soon reached our destination. The chief disaster occurred three or four hours later when I was returning to Zomba. I rode rather fast round a hairpin corner, because there was a steep ascent immediately beyond the bend, and suddenly I found myself upon the ground. Even this time my usual luck was with me, and we were not prevented by a bent pedal and a cut and bruised knee from completing the run home to Zomba. But from this bout the bicycle recovered rather more quickly than I did.



After elephants on a motor cycle.

The last episode in which the Triumph and I were concerned took place many days' journey from Zomba, in the depth of the bush. We were on a big game shooting expedition, and were living in tents. The motor bicycle was with us, ridden when the path permitted not by me but by its lawful owner. On this occas we had been hunting elephants all day, and when got back to the village where we had left the bicyc in the early morning, we had been walking for ei hours without food, and had gone through sc exciting experiences. More than a little exhauste was not looking forward with pleasure to the six m ride back to ca on my ramshac old pedal bicyc But the mo came to the cue, and, lent me temporar carried me hc in spite of rough and nar path both ea and quickly.

Our part when finally I turned to Engl was, on one at least, a sad c for, in spite some mere temporary mis derstandings, had really got extremely together. A moreover, if lady living in tropical and pri tive country w in need of an easy means of travel, I could thoroug recommend the motor bicycle as an ideal mount, tho I think I should advise a lighter machine than which I rode in Nyassaland.

MARY BRIDSON

THE MOTOR CYCLE IN JAPAN.

IN last week's supplement we published two illustrations of an A.C. tricar specially built for use on Japanese roads, to the order of Mr. R. Sumi, Osaka, Japan. The design was altered to allow the coolie to steer and control the runabout from the front seat, while the rear seat for the passenger was raised and enlarged. This arrangement was to imitate as closely as possible the Japanese jin-ricksha, which is drawn and not pushed by the coolie. The narrowness of the roads in Osaka was the chief inducement to Mr. Sumi to select a tricar. When Mr. Sumi was in England he called at our offices, and discussing with him the utility of the motor cycle in Japan, he told us that there were comparatively few motor bicycles at present in use in the Far East. Probably the total number does not exceed 100, and they are mostly used in the neighbourhood of Tokio, and then only by rich people and the nobility of the country. Motor cycles are not cheap in Japan, as there is a fifty per cent. *ad valorem* duty imposed by the Government, which looks upon all forms of motor transport as more or less a luxury to be heavily taxed. The roads, and particularly those in the neighbourhood of Osaka, are narrow and unsuitable for motor traffic; in fact, Mr. Sumi told us that he considered the use of a motor bicycle in some parts of Japan would be dangerous.

MOTOR CYCLES AT THE MANCHESTER SH

ON Friday, the 18th inst., the annual exhibi of cycles, motor cycles, and cars opens at City Exhibition Hall, Liverpool Road, De gate, Manchester. This exhibition grows popularity every year, and there will be a represe tive display of motor cycles, including the un mentioned makes:

Northern Supply Co.'s exhibit (Stands 28, 29, 30).—Single and twin-cylinder Premiers (tou models), T.T. Premier, 4 h.p. and 6 h.p. N.S.U. sidecars, 1½ h.p. and 2½ h.p. N.S.U. bicycles, 5 Indians and a 7 h.p. Indian with two-speed gear free engine, Motosacoche, two-speed V.S. and side and Mills-Fulford sidecars.

Harold Thompson (Stand 111).—Four models the Wolf lightweight, including the 1¾ h.p., 2 h 2½ h.p. twin, and 3 h.p. twin.

Cookson Bros. (Stand 88).—Minerva motor bicyc

H. Reed and Co. (Stand 9).—Dot motor cycles.

L. F. Harvey and Co. (Stand 32).—A.C. tricar single and twin-cylinder Bat motor bicycles.

J. W. Gourlay (Stand 34).—Bradbury, Doug Ariel, Norton, and P.M.C.

J. G. Looker (Stand 7).—Moto-Rêve and Rex.

Velox Tyre and Rubber Co. (Stand 83).—L.M motor cycles.

THEORY v. FACT

It is a favourite but quite erroneous theory that because

"THE SILENT"

INDIAN

is capable of great speed it is essentially a speed machine. The error arises from a failure to appreciate the question of efficiency and power.

The most efficient machine is the one that gives the most power for its size, and speed is one of the results that may be obtained from power.

But it is not the only result. This extra power also means an ample reserve for hill-climbing, heavy roads, and for heavy riders. It is simply a matter of having the gear appropriate to the work.

The Indian motor cycle is noted everywhere for the tremendous power it develops for its size. Remember—

"INDIAN" means POWER

HENDEE MANUFACTURING CO.
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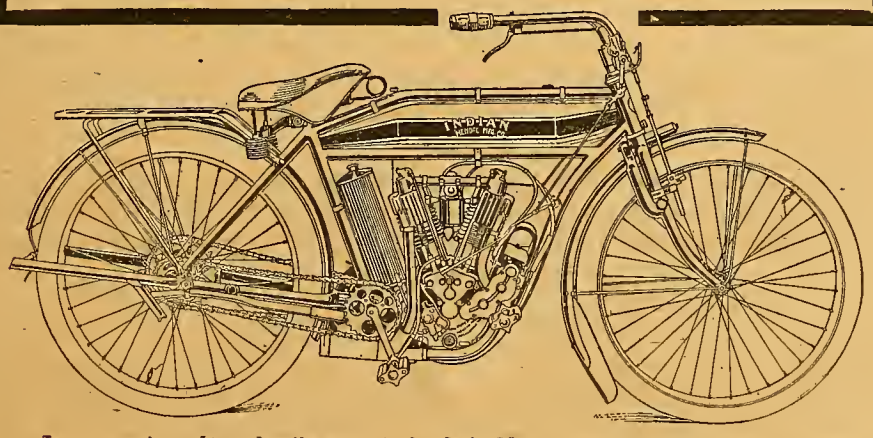
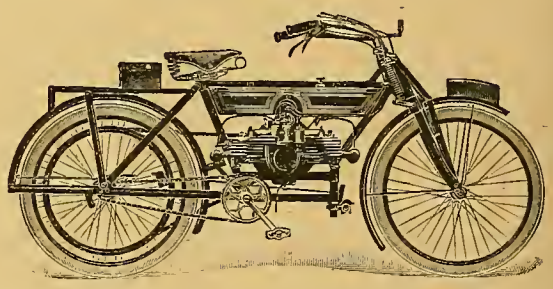


The Douglas Lightweight

in the 1910 A.C.U. Quarterly Trials.

January 29th.



Reliability.

Mr. P. Phillips,
Mr. G. L. Fletcher,
Mr. H. A. Cooper.

All succeeded in making Non-stop Runs.

Out of an entry of 67, only 15 riders made Non-stop Runs. The Douglas Motor Cycles were the only lightweights to do this. This proves the exceptionally arduous nature of the Trials.

Hill Climbing.

Mr. W. W. Douglas,
Mr. P. Phillips,
Mr. B. A. Hill,
Mr. G. L. Fletcher,
Mr. H. A. Cooper,
Mr. J. V. Robinson.

Full Marks for Climbing Rectory and Dashwood Hills.

The Douglas succeeded where many heavyweights failed, and in spite of the treacherous condition of the roads.

In the 1909 Trials.

In the Trial in October last year Mr. W. W. Douglas made a Non-stop Run, gaining **100** marks (maximum possible), equalling the performance of any machine in the Trial; and Mr. B. A. Hill (private owner) made Non-stop, gaining 95 marks, only 5 marks less than best performance by trade riders on machines of much greater power.

These repeated successes under conditions much more strenuous than subjected to in ordinary riding or touring, prove beyond all doubt the reliability and efficiency of the Douglas Lightweight.

WRITE FOR CATALOGUE.

DOUGLAS BROS., Kingswood, BRISTOL.

A.C.U. QUARTERLY RELIABILITY TRIALS.

OFFICIAL RESULTS.

BICYCLE AND TRICYCLE CLASS.

Rider and Machine.	Cyls	Bore and Stroke. mm.	Cyl. Capacity.	Marks Awarded. Hill-climbing. Dash-wood Hill. (10)	Hill-climbing. Rectory Hill. (10)	Ease of Starting. (5)	Brakes (15)	Silencer. (10)	Stand and Carrier. (10)	Cleanliness. (20)	Gen'l Excellence of Design (20)	Reliability. (100)	Total (200)	Remarks.
. hilipp, 3½ Scott	2	66¾×63½	430	10	10	5	15	10	10	15	17	100	192	Non-stop.
Pratt, 3½ P. & M.	1	82 ×88	465	10	10	5	15	9	10	15	16	100	190	Non-stop.
.ee Evans, 5 Indian	2	70 ×83	638	10	10	4	15	10	10	15	16	100	190	Non-stop.
O. Bentley, 5 Indian	2	70 ×83	638	10	10	4	15	10	10	15	16	100	190	Non-stop.
F. Newsome, 3½ Triumph	1	85 ×88	499	10	10	5	15	9	10	15	16	100	190	Non-stop.
. ibson, 5 Indian	2	70 ×83	638	10	10	4	15	10	10	15	16	100	190	Non-stop.
. hillips, 2¾ Douglas	2	60 ×60	340	10	10	4	15	10	10	15	15	100	189	Non-stop.
t. Cooper, 2¾ Douglas....	2	60 ×60	340	10	10	4	15	10	10	15	15	100	189	Non-stop.
. M. Whitham, 3½ Triumph	1	84 ×86	476	10	10	4	15	9	10	15	15	100	188	Non-stop.
. . Jones, 3¾ Premier	2	66 ×80	546	10	10	4	15	10	10	13	15	100	187	Non-stop.
. . Fletcher, 2¾ Douglas ..	2	60 ×60	340	10	10	4	15	10	10	13	15	100	187	Non-stop.
. . Applebee, 3½ Rex	1	82 ×89	470	10	10	4	15	8	10	13	16	100	186	Non-stop.
. tanley, 3½ Premier	1	85 ×90	512	10	10	4	15	9	10	13	15	100	186	Non-stop.
. ord, 3½ Excelsior	1	84½×89	499	10	10	4	15	7	10	15	14	100	185	Non-stop.
. . Robinson, 2¾ Douglas	2	60 ×60	340	10	10	4	15	10	10	15	15	95	184	One side-slip.
. avory, 3¾ Premier	2	66 ×80	546	10	10	4	15	10	10	15	15	95	184	One stop; went off route.
. mith, 5-6 Clyno	2	76 ×82	743	10	10	4	15	10	10	10	14	100	183	Non-stop.
. . Pridmore, 3½ Triumph	1	84 ×86	476	10	10	4	15	9	10	13	15	95	181	Stop to pick up route card.
. . Deacock. 3 Wanderer	2	60 ×72	404	10	10	4	15	10	10	13	13	95	180	Side-slip Dashwood.
. . Hill, 2¾ Douglas	2	60 ×60	340	10	10	4	15	10	10	15	15	90	179	One stop; sooted plug.
. rown, 3½ Excelsior	1	84½×89	499	10	10	4	15	7	10	13	14	95	178	One stop; went off route.
. . Bowen, 5 Indian	2	70 ×83	638	10	10	4	15	10	10	13	16	90	178	One stop through accident; broke chain and footrest.
. Harwood, 3½ P. & M. ..	1	82 ×90	475	10	10	5	15	9	10	13	16	90	178	One stop; punctured tyre.
. ennedy, 7-8 Bat	2	85 ×85	964	10	10	4	10	8	10	15	16	95	178	One stop to enquire way.
e ard Smith, 3½ Triumph	1	84 ×86	476	10	4	4	15	9	10	15	15	95	177	One stop; failed Rectory.
. . Andrews, 2 Moto-Reve	2	52 ×70	298	10	10	4	15	10	10	15	13	90	177	One stop; petrol pipe unsoldered.
. ttison, 2 Moto-Reve ..	2	52 ×70	298	10	10	4	15	10	10	15	13	90	177	One stop; oil pump rep'rd.
. . Stevenson, 3½ Triumph	1	84 ×86	476	10	–	4	15	9	10	17	15	95	175	Failed at Rectory.
. Ringham, 3½ Scott	2	66¾×63½	430	10	10	5	15	10	10	13	17	85	175	Two stops; side-slip, ran out of petrol.
. ighton, 3½ Triumph ..	1	85 ×88	499	10	10	4	15	9	10	15	15	85	173	Two stops; punctured tyre and side-slip.
. homas, 6-7 G.O.K.	2	76 ×95	862	10	10	5	10	8	10	13	11	95	172	One stop; went off route.
. arshall, 3½ Triumph	1	85 ×88	499	10	10	5	15	9	10	15	16	80	170	Two stops; tyre troubles.
V. cooper, 3½ Bradbury	1	87 ×87	517	10	–	4	15	7	10	13	10	90	169	Fell on Dashwood Hill and failed Rectory Hill.
. Dear, 1½ Wanderer	1	60 ×70	198	10	2	4	15	10	10	10	13	95	169	Failed Rectory.
. Gray, 3½ N.S.U.	1	80 ×80	402	10	8	4	10	10	10	15	12	90	169	One stop; punctured tyre.
V. V. Douglas, 2¾ Douglas	2	60 ×60	340	10	10	4	15	10	10	15	15	80	169	Two stops; ran into ditch, broken belt.
. . Lenc, 3½ P.M.C.	1	81 ×80	412	10	–	2	15	9	10	13	14	95	168	One stop; side-slip.
e ard Newey, 3½ Norton ..	1	82 ×90	475	10	4	4	15	9	10	12	14	90	168	One stop; slipping belt, Rectory.
. Janssen, 2 Moto-Reve	2	50 ×70	274	10	10	4	15	10	10	15	13	80	167	Two stops; pedal chain jumped off twice.
. . Applebee, 5 Rex	2	76 ×80	734	10	10	4	12	7	10	12	9	90	164	One stop; unknown cause.
. Barker, 3½ Clyde	1	85 ×85	482	10	–	4	15	8	10	15	11	90	163	Two stops; failed Rectory, engine stop.
. nderhill, 3½ L.M.C.	1	85 ×88	499	10	–	4	10	8	10	13	11	95	161	One stop; Rectory, belt slipping.
. oerlander, 2½ N.S.U. ..	2	52 ×74	314	10	–	3	10	9	10	12	11	95	160	One side-slip.
. Slaughter, 3½ Ariel	1	85 ×85	483	–	–	4	15	9	10	13	14	95	160	Stopped on both hills.
li lark, 2¾ Douglas	2	60 ×60	340	–	–	4	15	10	10	15	15	90	159	One stop; petrol jet choked
. Holroyd, 1½Motosacoche	1	62 ×75	226	–	–	4	15	10	10	13	12	95	159	Stopped on both hills.
. ickham, 2¾ Douglas	2	60 ×60	340	10	–	4	15	10	10	13	15	80	157	Two stops; side-slip and grit under inlet valve.
. evir, 3½ L.M.C.	1	84 ×88	488	10	8	4	10	8	10	15	11	80	156	Two stops; belt fastener, petrol exhausted.
. . Lake, 3½ P. and M. ..	1	82 ×88	465	7	–	5	15	9	10	13	16	80	155	Four stops; three side-slips, ran out of petrol.

* Private owners. ‡ Two-stroke.

BICYCLE AND TRICYCLE CLASS (*Continued*).

Rider and Machine.	Cyls	Bore and Stroke. mm.	Cyl. Capacity.	Marks Awarded. Hill-climbing. Dashwood Hill. (10)	Hill-climbing. Rectory Hill. (10)	Ease of Starting. (5)	Brakes (15)	Silencer. (10)	Stand and Carrier. (10)	Cleanliness. (20)	Gen'l Excellence of Design (20)	Reliability. (100)	Total (200)	Remarks.
H. G. Bell, 2¼ F.N. (tricycle)	1	65 × 75	250	10	10	5	10	9	7	10	15	70	146	Three stops; magne troubles.
D. R. Clarke, 3½ James	1	86 × 96	558	7	–	4	15	8	5	13	8	95	144	Failed Rectory Hill.
W. G. Ayling, 3½ Midget Bicar	1	80 × 80	402	5	–	4	15	8	10	—	11	90	143	One stop; sooted plug
R. J. Bell, 2 Moto-Reve	2	50 × 70	274	10	–	4	15	10	10	13	13	50	126	Various stops; mag trouble.
‡Eric S. Myers, 3½ Scott	2	66¾ × 63½	430	10	–	5	15	10	10	–	17	–	67	Retired; broken chai
T. Silver, 3½ Quadrant	1	84 × 100	554	10	–	4	15	9	10	–	14	–	62	Retired; side-slip, dam machine.
*W. A. Lockwood, 3½ P. & M.	1	82 × 88	465	–	–	5	15	9	10	–	16	–	55	Retired; top gear w not engage.
G. Allen, 3½ James	1	86 × 96	558	10	–	4	15	8	5	–	8	–	52	Retired; broken valve
W. Pershke, 5 V.S.	2	75 × 75	662	–	–	4	15	8	10	–	15	–	52	Retired through acci
*Miss L. Berend, 2 Moto Reve	2	50 × 70	274	–	–	3	15	10	10	–	11	–	49	Retired owing to bad dition of roads.
F. A. McNab, 3½ Trump	1	85 × 85	482	–	–	4	15	9	10	–	10	–	48	Retired; side-slip.
A. T. Stanton, 3½ Bradbury..	1	87 × 87	517	–	–	4	15	7	10	–	10	–	46	Retired; side-slip.
H. G. Partridge, 3½ N.S.U. ..	1	85 × 88	499	–	–	4	10	8	10	–	12	–	44	Retired owing to side
S. C. Perryman, 3½ James ..	1	86 × 96	558	–	–	4	15	8	5	–	8	–	42	Retired; broken valve
PASSENGER CLASS.														
*A. R. Abbott, jun., 8 Matchless and Sidecar	2	85 × 85	964	10	10	5	15	7	†10	13	16	90	176	One stop; belt fas disconnected.
M. Geiger, 7 V.S. and Sidecar	2	80 × 95	952	10	5	5	15	8	†10	15	16	90	174	Failed on Rectory Hi
F. Eagles, 6 N.S.U. and Sidecar	2	75 × 90	796	–	–	5	10	7	†10	13	13	95	153	Failed on test hills.
H. C. Griffin, 3½ Premier and Sidecar	1	85 × 90	511	10	–	4	15	5	†10	13	9	80	146	Two stops; shorten belt, petrol union l
G. N. Higgs, 5 A.C. Tricar	1	90 × 102	649	10	–	5	15	10	†10	–	12	–	62	Retired; overturne through side-slip.
*J. Tassell, 8 Matchless and Sidecar	2	85 × 85	964	10	–	5	15	5	†10	–	16	–	61	Retired; tyre trouble magneto failure.
A. G. Fenn, 5 A.C. Sociable	1	90 × 102	649	–	–	5	15	10	†10	–	12	–	52	Retired at Banbury; unknown.
J. Portwine, 5 A.C. Sociable	1	90 × 102	649	–	–	5	15	10	†10	–	12	–	52	Retired; overturned through side-slip.

‡Two-stroke. * Private owners. † Luggage capacity.

NOTE.—The maximum number of marks obtainable are given in brackets at the head of the respective columns.

NOTES ON THE TRIAL.

The foregoing results have been especially arranged in the competitors' order of merit to enable readers to readily observe the close order of the running for the silver cup. Only two marks separate the first six competitors.

F. Eagles's failure to climb Dashwood was due to the steel studded tyre on the back wheel, and "not to the added weight of the sidecar," we are told.

One of the competitors distinguished himself by riding throughout the trial in a hard bowler hat.

G. N. Higgs, who drove one of the A.C. tricars in the Quarterly Trials, fell asleep whilst driving along, and was unlucky enough to have the tricar turn over on the top of him. When he came round again he found he was at the house of Mr. Brackley, Waterworks, New Ground, Tring, where he has received most kindly treatment. He had lost no marks up to Tring, and had only twenty-five miles more to cover.

Eric Myers lost his non-stop certificate through tempting fortune too far. For the Tourist Trophy Race last September he fitted ordinary Renold pedal cycle chains to his two-stroke Scott, and since then he has ridden the same machine over 2,000 miles. He made no alteration or replacement for the Quarterly Trials, with the result that at Berkhampstead one of the chains broke whilst he was climbing a hill.

Some of the competing machines were fully laden wit touring equipment, the 1910 L.M.C. was one of them.

Nine twin-cylinder and six single-cylinder motor cycl made non-stop runs.

The Scott Engineering Co. may be exceedingly proud their achievement in the Quarterly Trial. On the 29th ul the Scott two-stroke signalled its second appearance in quarterly trial by scoring highest marks.

Every lightweight motor cycle qualifying for a non-st award was shod with R.O.M. tyres. Of the entire numb of machines qualifying for non-stop certificates, 50% we fitted with R.O.M. tyres.

Besides being the first tricycle to complete the Uxbrid to Banbury and back course, the F.N. engine with i cylinder capacity of 250 c.c. was the third smallest finish, this in spite of its being handicapped by an ext wheel and a machine weighing as much as a 3½ h.p. bicycle.

We can only criticise the judges' awards in one respe Several of the competitors have been penalised for goi off the route (although it is admitted that in parts t marking was not what it might have been), whilst oth competitors who travelled off the course have been credit with non-stops.

CLUB NEWS

Middlesbrough and District M.C.C.

A most enjoyable and instructive paper is a most fitting comment on Mr. Alex. Lauriston's lecture, "The Law and its Relations to Motor Car and Cycle Owners." About fifty members were present, Mr. F. Scott presiding. The proceedings were brought to a close with a vote of thanks to the chairman and the lecturer.

Another Club for Leicester.

Regarding the leaderette in the last issue of *The Motor Cycle*, Mr. H. E. Smith advises us that it is hoped to form a motor cycle club for Leicestershire with the assistance of an exhibition to be held at Easter. Suggestions from local riders and proffered help would be gladly received by Mr. Smith, who is secretary of the Leicester Young Men's Christian Association.

Newcastle M.C.

The Newcastle Motor Club held another whist drive at the Royal Arcade Assembly Rooms, a large number of members and their friends being present. A most enjoyable evening was spent. The hon. sec., Mr. Alan G. Robson, reminded the members present that the annual general meeting is to be held at headquarters, County Hotel, on Wednesday next, 9th inst.

Harrogate and District M.C.C.

The annual whist drive and dance were held at the Imperial Cafe on the 28th ult. Despite the extremely bad weather some fifty members and friends were present and enjoyed the fare provided. On the 10th inst. a discussion will take place entitled "How to Physically Train for such Races as the T.T." On the 19th inst. a gymkhana has been arranged to be held at the Skating Rink.

Norwich and District M.C.C.

At the annual meeting of the above club, presided over by Mr. Everard, and supported by Messrs. Rackham, Poll, Pond, Pope, Smith, Chapman, Duge, Roberts, Bullen, Clem, etc., the following officers were elected: President, Mr. Bernard Thorne; vice-presidents, Capt. Duff, Mr. G. W. Bye, Mr. H. Chapman, and Mr. C. E. Rackham; hon. sec. and treasurer, Mr. Lincoln; committee, Messrs. Roberts, Bye, Peed, Lock, Smith, and Body; captain, Mr. A. A. Everard; sub-captain, Mr. H. Poll.

Oxford M.C.C.

The annual meeting took place on the 26th ult. Following the treasurer's and secretary's reports, the chairman, Mr. H. A. T. Packfe, in his remarks emphasised the importance of being affiliated to a governing body, instancing a case of a member who has received advice and financial assistance from the Auto Cycle Union and the Motor Union in connection with a fatal accident supposed to be caused by his motor cycle, resulting in a claim upon him for a substantial sum. Mr. Harvey Du Cros was elected president of the club with acclamation, and Lord Valentia, Alderman Salter, Dr. Collier, Dr. Jones, and Mr. H. A. T. Packford vice-presidents.

Mr. H. G. Hill, trials hon. sec., then submitted a full and interesting programme of competitions arranged for this year, reporting that he had received promises of substantial prizes, which will be published shortly. An attractive and successful year is anticipated, and new members will be warmly welcomed. Particulars of membership may be obtained from the hon. sec., W. A. Mathews, 6, St. Aldates, Oxford.

On the 22nd inst. the Rev. B. H. Davies will give a paper on "Aeroplanes," illustrated with 1in. models and lantern slides.

Walthamstow M.C.

The annual general meeting will be held at headquarters, Rose and Crown, Hoe Street, Walthamstow, on Wednesday next, 9th inst., at eight o'clock. It is hoped that the members will make a special effort to attend.

Manchester M.C.

The A.G.M. was held at headquarters, the Albion Hotel, Piccadilly, on the 28th ult., to receive the secretary's and treasurer's reports and balance sheet. The secretary's report was passed as extremely satisfactory, also the auditor's report. The balance sheet showed an annual turnover of over £350, and a loss of £55 on last year's working as expenditure over income. There is, however, a substantial working balance in hand. The election of officers and committee resulted as follows; President, J. H. Charlesworth; vice-presidents,

G. E. Stanley (3½ h.p. Premier), who was runner up for the silver cup in the 1909 Quarterly Trials, and has started 1910 well by making a non-stop run, and obtaining full marks on both the test hills.

P. A. G. Bell and J. Higginson, jun.; captain of car section, Percy Butler; sub-captain, E. J. Chambers; captain motor cycle section, H. Reed; sub-captain, C. E. Kettle; treasurer, F. C. Hunt; secretary, A. J. Moorhouse; committee, A. J. Bell, J. E. Tytler, J. H. Baynes, G. Ward, W. McNeil, J. T. Ward, T. Garner, E. Jones, and H. L. Cunliffe. A discussion took place on the competitions for 1910, and it was pointed out that every effort should be made to induce more entrants for the club competitions. Systems of handicapping prize winners were proposed, also competitions for novices. As showing the sportsmanlike feeling prevailing in the club ranks, subscriptions were then tendered in the room, first by the leading officials and then by ordinary members, in aid of the 1910 prize fund. One of £10 10s., followed by several of £5 5s., then £3 3s., £2 2s., and £1 1s. to the number of over twenty separate offers quickly brought the subscribed prize fund to about £70.

FURTHER NEWS FROM THE CLUBS APPEARS IN THE SUPPLEMENT.

BORE-STROKE RATIO & EFFICIENCY.

A. A. Scott's Reply to J. L. Norton's Criticism of his article.

MY thanks are due to Mr. Norton for his reply to my criticism of his article on the above subject, and also to Mr. C. A. St. George Moore for his letter in *The Motor Cycle* approving of my contentions.

I wish first of all to remind Mr. Norton that my criticism is primarily directed against his statement that "an increase of power is gained by an increase of stroke without any increase of capacity," and that, without being prejudiced in favour of either long or short-stroke ratios, I consider that so revolutionary a statement as this is entirely unjustified by our common engineering experience.

I have attempted to bring the advantages of both styles fairly before my readers, and if I appear to Mr. Norton to "turn the guns on my own ranks," etc., I take this as a tribute to the impartial nature of my investigation, so that, although in Mr. Norton's opinion "some of my arguments really serve to strengthen his case for the long-stroke engine," it still remains to be shown how and to what extent the long stroke is superior in power.

An Untenable Theory.

In my opinion Mr. Norton places himself at a considerable disadvantage in this discussion in having to make out a case for the long stroke in support of this quite untenable theory, and consequently we find that, while he deals at length in his article with all the points in favour of the long stroke, the corresponding advantages of the short stroke are ignored.

In reply to "especial pleading" of this sort, it was necessary first of all to find out the proportion of bore and stroke which constituted a long or short-stroke engine, and to select types that I considered more representative of motor cycle engines in use on the road, and then to discover exactly what happens in the cylinder of the engine, so as to be able to determine the value of Mr. Norton's trump card—the extra heating surface of the short stroke.

As pointed out by your correspondent, Mr. St. George Moore, "it is impossible to make an accurate quantitative calculation of the transfers of heat back and forward between the cylinder walls and the working fluid"; and since so much was made of this point, I attempted, by comparison with the overhead valve type, to find out to what extent this extra surface was responsible for loss of power.

This is, in Mr. Norton's opinion, waste of time, since I am told that it "has no bearing on the question at issue," and that I am "digressing here from the subject matter," while my brief reference to th valveless type is characterised as a "dissertation c the two-stroke engine, to which my article had r reference"!

In replying to the points raised by Mr. Norton, regret his remarks about my lack of sound argumen but am duly thankful for his admission that at lea some casual readers may be misled by my contributi to this discussion.

Now it is evident that Mr. Norton cannot get ov the idea that the short stroke must move faster to gi equal power, and all through his consideration of t subject, like "King Charles's head," he keeps brin ing in this quite unsupported theory, although in n investigation I have insisted upon an equal basis comparison, and have only referred to this capabili of higher speed as a separate advantage peculiar the short-stroke engine.

Consequently this is not, as Mr. Norton says, ov looked in my comparison of the frictional losses, that what he has to say here has no effect in dep ciating the "distinct gain in mechanical efficienc of the short-stroke engine.

Frictional Loss caused by Piston Rings.

I have certainly omitted to mention that b bearings can be applied to both types, because th is obvious and a necessary condition for a fair co parison, but I have insisted upon the fact that if well-proportioned bearing, and preferably a b bearing, is used in both cases, then, in spite of t heavier load on the bearings and on the side of t piston, the friction at these points "is quite negligil compared with the severe frictional loss caused by t piston rings."

This statement is in accord with the experience high speed steam engine makers, although apparen not admitted by Mr. Norton.

As for the increased diameter of piston ring in t short stroke, it is a well-known fact that the stren of the ring has to be increased out of proportion in t smaller diameter long-stroke piston, in order to p vide sufficient bearing surface on the sides of the r and to ensure sufficient local strength in the sect of the ring, so that the pressure of the large r against the walls of the cylinder would be for eq thicknesses actually less than that of the smal ring, although spread over a greater surface. fact, in very small cylinders below 2in. diameter it a difficult matter to make the ring with sufficient el ticity without reducing its thickness to an unsafe exte

e-stroke Ratio and Efficiency.—

In view of this, we can fairly allow in a practical rking engine more or less the same ring pressure in th cases, but we still find, when we have tied Mr. rton down to equal revolutions, that the long-stroke gine has to develop an extra amount of power to mpensate for a frictional resistance equivalent to nrly four strokes of the short-stroke engine.

Thermal and Frictional Losses Balanced.

Unfortunately, it is impossible to say definitely ether this frictional loss in the long-stroke engine exactly balanced by the thermal loss in the short-oke engine, since to arrive at this we would require take indicator and brake tests from both engines der equal conditions and at the same rate of revolu-n; but, failing reliable data of this sort, we can cite fairly assume that the thermal loss of the short oke makes up for the frictional loss of the long oke, and if Mr. Norton insists upon the short stroke ming at such a rate of revolutions that the thermal ses of each type are equal, then we shall probably d that the frictional losses of each are also equal.

Mr. Norton puts forth the original view that the ton speed is limited by "strength of materials" and wer of impulse, and contends that either type of gine can be run as fast; but since I have already own that the inertia of the reciprocating parts of t long-stroke engine is nearly twice that of the short oke, there would certainly require to be a very nsiderable additional strength of material, accom-nied with additional weight, if the revolutions of t long stroke were increased to the same extent as t short stroke, to say nothing of enormously increased g friction from its long stroke.

Referring to my figures on the subject of inertia d Mr. Norton's protest against what he considers a unfair shortening of the connecting rod to demon-ate the additional frictional losses in the long stroke gine. Evidently Mr. Norton has missed the whole point of my brief remark that "if, then, a rod only twice the stroke is used, the inertia of A (at top of stroke) = 707.7 lbs."

This has nothing whatever to do with increased friction, but since with the long-stroke engine a shorter rod is generally used, it was important to point out that this caused increased inertia at the top, although reducing the inertia at the other end of the stroke.

Immediately following this I pointed out that if a shorter rod is used, as is generally the case, "it is at the expense of further frictional loss."

Comparative Weight of Pistons.

Finally I am asked to explain how it is that a large diameter piston can be made lighter in proportion to its size. This is as explained in connection with piston rings due to the limit of local strength. For instance, a 4in. piston might have its walls $\frac{1}{16}$in. thick, while a 2in. piston would have to be made less than $\frac{1}{32}$in.—an impracticable thickness for a cast-iron piston. Then again the weight of piston should be in proportion to its area (since the load is in proportion to its area), and while the 2in. piston has 3.14 square inches, the 4in. piston has four times the area, or 12.566in., so that the weight per square inch is less in the large piston, even if we assume that this weighs twice as much as the small piston.

Regarding the weight of the longer connecting rod, this can be fairly assumed to be nearly double the weight of the shorter rod, for, although subjected to less load, the increased length calls for increased section to resist bending.

Finally, if Mr. Norton is correct in his assertion—"that by increase of stroke ratio we gain a definite increase of power"—then it follows that the greater the stroke ratio the greater the gain in power, and to show the absurdity of this statement, we have only to imagine the remarkable results which according to this theory should be derived from an engine $\frac{1}{8}$in. bore by 6ft. stroke!

TWO HUNDRED MILES OF MUD-PLUGGING IN A DAY.

"YOUR 1910 motor cycle is ready. Shall we forward same, or will you call?" Thus read a telegram addressed to me from the makers—Messrs. Bradbury and Co., Ltd., Oldham. "Forward same! Whatever was it made for!" I soliloquised. Why, certainly I will call at the works and ride it back.

And so it came about that January 1st found me at Oldham, and, later in the day, I took the machine for a preliminary canter, and made three clean ascents of Rippenden Bank (an exceptionally steep hill with a sharp bend at the stiffest portion), situated some fifteen miles from Oldham, over the moors. Every Bradbury, I am told, is tested on this hill, and has to climb it at a good speed before it is finally passed.

The following day I mounted my machine and bided for London. The condition of the roads from the outset was atrocious, and there was nothing to cheer me up but the steady pull of the well tuned engine. I never saw a dry bit of earth from the beginning to the end of the run. Greasy patches were in strong evidence, and looked anxious to make closer acquaintance with my clothes, but thanks to the R.O.M. non-skid tyres, the very low build of the machine, and the extremely smooth running engine, I soon acquired a feeling of comfort. As good as the 1909 Bradbury was, I like the 1910 model very much better. It is faster, and what is perhaps most remarkable, an even better hill-climber, for it must be admitted that the 1909 Bradbury is a hill climber of the highest rank.

Joining the Great North Road at Doncaster, I had no difficulty in attaining a most encouraging average in spite of the adverse riding conditions. The only real hill on the Great North Road from Doncaster to London is Gonerby Hill, near Grantham. The inches of mud which abounded precluded all possibility of rushing the gradient, and under these conditions most engines would get hot and knock; but not so the Bradbury. It simply took a deep breath when it found its front wheel above the level of the back one, and, gee whiz! like a rocket it shot to the top.

After a day's continual running the engine was so cool that I could keep my gloved hand on the cylinder. This, of course, means absence of valve troubles. During the whole run I was not caused a moment's anxiety, and I feel I have a motor bicycle of which I may be well proud. The Bradbury should assert itself in 1910 hill-climbs. B. B.

OCCASIONAL COMMENTS

BY "IXION"

A Spring Saddle Pillar.

Mr. W. W. Genn has just forwarded me a sample of his registered spring saddle pillar, which was illustrated on October 21st, 1908, page 815. In principle it is rather similar to the Druid fork. The saddle is mounted on an L-shaped piece of tubing slung from two clips by coiled springs, the clips being made to fit the frame tube of any motor bicycle. I have tried it on my rigid framed machine, and find it quite efficient in reducing road shocks.

Tank Filling Made Easy.

It is not every garage that owns a petrol funnel of motor cycle size, and in all big trials men are kept waiting till the funnel is available. I examined a machine this week which mocks at funnels. It is one of the new pattern filler caps, about two inches in diameter, with a permanent gauze filter fitted in the orifice. When the proud owner fills up he just takes a petrol can, loosens the cap, inverts the can with its snout in the tank orifice, slips the cap off, and lets the spirit run swiftly into the gauze well. Here is a device we could all do with, I fancy, saving time, temper, and trouble.

A Cute Suggestion.

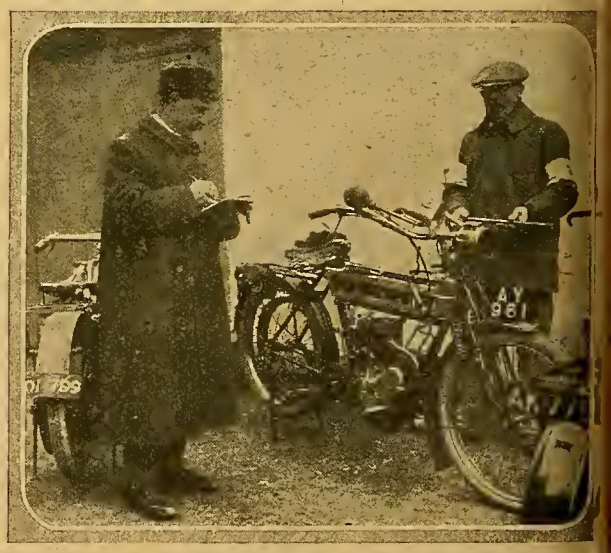
I was out last week on the car of an ex-motor cyclist, and I noticed that the extra air intake to his carburetter consisted of a long pipe brought up under his steering wheel, so that the air was sucked in from a district of the atmosphere which is always clear of dust. Judging by analyses of carbon deposit, this is just what we motor cyclists want. Both air intakes ought to be through pipes with their openings set near the saddle bow or the centre of the handle-bars; the one for extra air might easily be coupled up to the existing grip lever by a flexible wire. We should then get no grit in our cylinders, and the wear of our engines would be notably decelerated. Who will be the first daring innovator? I owe the idea to a correspondent of *The Motor Cycle*.

Exhaust Valves.

Not long ago I wrote one or two grumbles about the fragile construction of the modern exhaust valve. Granting that the two-piece valve with a cast-iron head screwed and shrunk on to a steel stem is a champion non-pitter, very few makers seem to have succeeded in perfecting the joint between head and stem, and valve breakages sometimes have serious results. Even if an intact valve head cannot jump through into the cylinder, the drilled heads often "fly"—*i.e.*, break into several fragments—and even if a segment does no damage, the cylinder probably has to be removed before it can be extricated. Many readers have written to confirm my experiences. I recommend some experiments in metallurgy. The contrast with the days of the old De Dion and M.M.C. engines is a lurid one—exhaust valves lasted us two or three years then; and granted that modern engines demand lighter valves of more slender construction, there must be metals and methods of manufacture which would give us a light valve as staunch as the old heavier types. One rider sends me an astonishing experience. I cannot challenge it, because I never owned a duplicate of his machine. He says that in 1906 he bought a certain first-class British machine and had to pay 15s. for a spare valve. He has ridden the machine constantly ever since, and is still using the original exhaust valve, which he has never once ground in. It is made of such excellent stuff that an occasional scrubbing with petrol has sufficed to keep it compression tight. In any case I regard the perfection of the exhaust valve as one of the most pressing problems which confront motor cycle engine designers of to-day. Personally I would rather use valves which pitted somewhat quickly than a valve which may break after 500 miles riding.

Tuning up for the Quarterly.

A few days before the last Quarterly Trial I was coming down Dashwood in a big hurry with the intention of reaching London before darkness set in, and I surprised seven riders tuning up their machines for

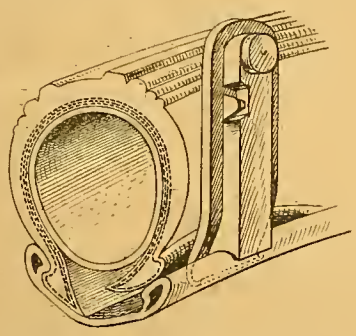


The A.C.U. secretary, Mr F. Straight, noting details of the new pattern Clyde motor bicycle ridden by Mr. A. L. Barker in the Quarterly Trials.

the event of the following Saturday! As no advantage is gained by scoring the fastest ascent, it is obvious that riders who took this precaution could not rely on climbing Dashwood at legal limit speed without a preliminary trial at the actual venue. One competitor had apparently brought out his machine on a car, and for all I know took it back to Uxbridge in the same inglorious way. This is a fine text for a dissertation on the private owner's need of variable gears. When trade cracks have nerves on the subject of Dashwood—a short, straight climb with no single figure gradient in it—it is evident that single-geared roadsters are not invariably equal to all possible demands.

BOBBETT'S TYRE GRIP.

Bobbett's self-holding tyre grips are fairly well known to autocarists, and the makers, Bobbett and Sons, 1 and 2, The Quay, Teignmouth, have now brought out a tyre grip for motor cycle tyres which we illustrate herewith. The illustration is almost self-explanatory, but for those who are unaccustomed to this device it may be advisable to point out that it is intended to supersede the first tyre lever used in replacing a cover on the rim, and which in the case of a stiff motor cycle cover (particularly if of the studded variety) has to be held by a second person, otherwise it slips and allows the cover to displace itself from the rim. With a Bobbett grip all that is necessary is to push the cover over, insert the grip, and fix it by turning down the pivoted lever until it is parallel with the hook portion, shown in engagement with the beaded edge of the rim. The grip is strongly made, nickel plated, and sold at a most reasonable price, and should be of great service to motor cyclists, particularly those who ride machines fitted with the heaviest type of covers, which are sometimes a little more than can be easily managed with one pair of hands.



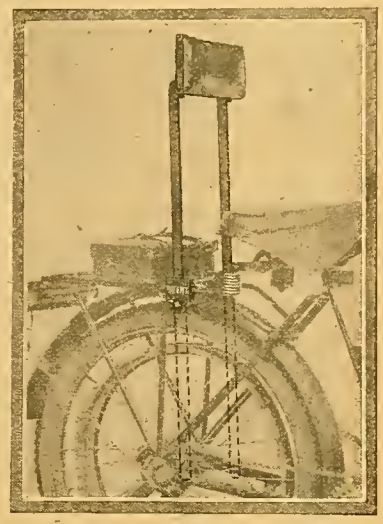
THE "IDEAL" SPRING FORK.

The latest type of spring fork to be placed on the market is the subject of the accompanying illustration, and is manufactured by Mr. F. J. Millard, Gilbert Road, Belvedere, Kent. It will be noticed that there are two complete forks, the front one to which the wheel is attached being the same as an ordinary rigid fork. The action of the springing is arranged on the lines of the parallel ruler. There are three pairs of links, the top pair being attached to the ball head clip of the steering column and the dummy steering tube of the spring fork, the centre pair to the fork crowns, and the bottom pair to the fork ends. Side play is therefore carefully guarded against, and it is claimed that the springs are so placed that immediately the shock is received it is absorbed by the springs, and is not transmitted through the fork blades. A front rim brake can be fitted, and the makers assure us that a sidecar does not affect the efficiency of the fork in the slightest. The forks are made to fit all makes of machines.

A new design spring fork known as "The Ideal."

ANOTHER BACK-REST FOR MOTOR CYCLISTS.

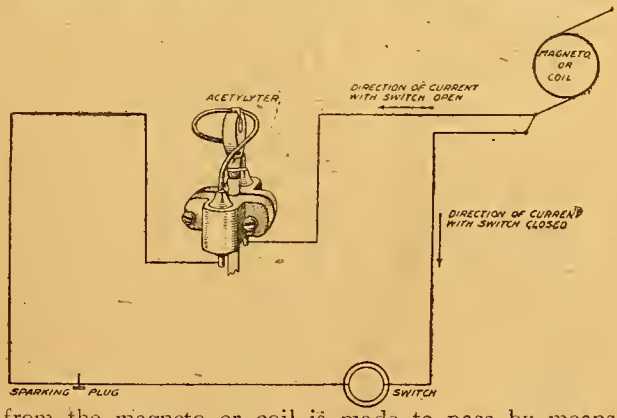
Particulars of another back-rest for motor cyclists have been sent us by J. W. Harrison and Co., 205, Corporation Street, Preston. Reference to the illustration shows that the two supports of the rest slide in guides attached to the luggage carrier. With the rest at its lowest position the rider mounts the saddle in the usual way, then by placing his hand behind he raises the rest to a convenient position. In case of a hurried dismount he merely leans forward, when the rest drops to its lowest position. It is claimed that it is impossible for the rider to catch his leg against the rest while dismounting. The rest is upholstered and fitted with a pneumatic cushion, which latter has a tendency to roll with the motion of the saddle, so preventing chafing of the rider's back.



Harrison's "disappearing" backrest which is designed to enable a hurried dismount.

A LAMP LIGHTING DEVICE.

Riders who wish to avoid the necessity of dismounting to light their acetylene gas lamps will be interested in an ingenious device called the "Acetylyter," made by Cox-Walkers, Ltd., electrical engineers, Darlington. The device illustrated in the centre of the wiring diagram fits over the lamp burner, and consists of an insulator carrying two wires, through which current from the magneto or coil is made to pass by means of a switch attached to the handle-bar. The diagram of connections shows the wiring suitable for magneto or coil. To light the lamp, the water in the generator is turned on, the switch opened, and the gas issuing from the burner is ignited by the spark. As soon as this occurs the switch should be closed. It will be noticed that fairly long high-tension wires are required to make the necessary connections.



THE MOTOR CYCLE BUYERS' GUIDE, 1910.

Specifications of all Motor Cycles on the British market.

Ever since 1906 the Buyers' Guide has been a much appreciated feature of "The Motor Cycle." For the purpose of reference it is invaluable to present and prospective motor cyclists, who are at this period busy weighing up the merits of each machine's specification prior to placing an order. The tabulated specifications enable comparisons to be made with a minimum of trouble, and in this connection we may remind readers that a straight edge or rule laid across the pages enables the line to be followed with ease. The particulars given hereunder have been furnished to us by the various manufacturers, a special form having been circulated by us for filling-in purposes. When, for instance, a certain make of machine is supplied with or without a two-speed gear, only one entry has been made in the Guide, "To order" being inserted in the Gear column to avoid needless repetition. In such cases the price given in the right hand column refers to the lowest-priced model. Whilst every effort has been made to avoid inaccuracies, we cannot be held responsible for any errors in the specifications or prices.

SINGLE-CYLINDER BICYCLES.

Name of Motor Bicycle.	H.P.	Name of Engine.	Bore and Stroke. mm.	Inlet Valves.	Name of Carburetter.	Ignition.	Transmission.	Standard Gear or Gears.	Height of Saddle from Ground.	Diam. of Wheel.	Standard Size and Make of Tyres.	Standard Frame.	Standard Forks.	Length of Wheelbase.	Weight, Unladen. lbs.	Pedaling Gear.	Stand and Carrier.	Price. £ s.
Advance ..	3	Advance	76× 82	A.	B. and B. ..	Magneto	Belt	Adjustable	28″	26″	2″ Hermetic	Rigid	Spring	55″	128	Yes	Yes	38 17
Advance ..	3½	Advance	85× 85	M.	B. and B. ..	Magneto	Belt	Adjustable	28″	26″	2¼″ Hermetic	Rigid	Spring	55″	128	Yes	Yes	44 2
Alldays ..	2½	Alldays	70× 76	A.	B. and B. ..	Magneto	Belt	4¾ to 1	34″	26″	1¾″ to order	Rigid	Rigid	54″	112	Yes	Yes	32 10
Anglian ..	2½	J.A.P. ..	70× 76	A.	B. and B. ..	Battery	Belt	5 to 1	33″	26″	2″ Contin'l	Rigid	to order	45″	100	Yes	Yes	24 0
Anglian ..	2¾	De Dion	74× 76	A.	De Dion ..	Magneto	to order	to order	33″	26″	2¼″ Palmer	Rigid	Spring	58″	150	to order	Yes	37 0
Ariel	2½	Ariel	68× 75	M.	B. and B. ..	to order	Belt	4 to 1	34″	26″	2″ Liberty	Rigid	Spring	52″	110	Yes	Yes	35 0
Ariel	3½	Ariel	85× 85	M.	B. and B. ..	Magneto	Belt	Adjustable	31½″	26″	2¼″ Liberty	Rigid	Spring	52″	175	No	Yes	45 0
Ariel	3½	Ariel	85× 85	M.	B. and B. ..	Magneto	Belt	Variable	31½″	26″	2¼″ Liberty	Rigid	Spring	52″	180	No	Yes	50 0
Arno	3½	Arno	84× 90	M.	B. and B. ..	Magneto	Belt	5 to 1	29″	26″	2¼″ Contin'l	Rigid	Spring	56″	170	to order	Yes	45 0
A.S.L.	3½	Fafnir....	80× 90	M.	Fafnir	Magneto	Belt	4½ to 1	27½″	22″	2¼″ Moseley	Air sp'ng	Air sp'ng	51″	155	No	Yes	50 0
Bat	3½	J.A.P. ..	85× 85	M.	B. and B. ..	Magneto	Belt	4½ to 1	32″	26″	2¼″ R.O.M.	Spring	Spring	52″	165	No	Yes	48 10
Bradbury ..	3½	Bradbury	87× 87	M.	B. and B. ..	Magneto	Belt	Adjustable	29″	26″	2¼″ to order	Rigid	Spring	51″	178	Yes	Yes	46 0
Brough	2½	Brough ..	75× 76	M.	B. and B. ..	Magneto	Belt	Adjustable	30½″	26″	2″ to order	Rigid	Spring	49″	115	Yes	Yes	34 0
Brough	3½	Brough ..	84× 86	M.	B. and B. ..	Magneto	Belt	Adjustable	30½″	26″	2¼″ to order	Rigid	Spring	50″	138	Yes	Yes	42 0
Brown	3½	Brown ..	85× 85	M.	B. and B. ..	Magneto	Belt	Adjustable	32″	26″	2¼″ Clincher	Rigid	Spring	53½″	165	Yes	Yes	48 0
Brown T.T.	3½	Brown ..	85× 85	M.	B. and B. ..	Magneto	Belt	to order	31″	26″	2¼″ Dunlop	Rigid	to order	51″	156	No	Yes	48 0
Calthorpe ..	3½	W. and P.	85× 85	M.	Amac	Magneto	Belt	to order	30″	26″	2¼″ Dunlop	Rigid	Spring	55″	160	Yes	Yes	46 4
Chater-Lea	2½	J.A.P. ..	70× 76	A.	to order	Magneto	Belt	4½ to 1	33″	26″	2″ Dunlop	Rigid	Spring	50″	—	Yes	Yes	35 0
Chater-Lea	4	C.L.	85× 86	M.	to order	Magneto	Belt	4½ to 1	33″	26″	2″ Dunlop	Rigid	Spring	55″	—	Yes	Yes	44 10
Chater-Lea	4	J.A.P. ..	85× 85	M.	to order	Magneto	Belt	4½ to 1	33″	26″	2″ Dunlop	Rigid	Spring	55″	—	Yes	Yes	46 10
Clyde	4	J.A.P. ..	85× 85	to order	B. and B. ..	Magneto	Belt	4½ to 1	30″	26″	2¼″ Dunlop	Rigid	Spring	56½″	—	Yes	Yes	43 0
Clyde	4	W. and P.	85× 85	M.	B. and B. ..	Magneto	Belt	4½ to 1	30″	26″	2¼″ Dunlop	Rigid	Spring	56½″	—	Yes	Yes	45 0
Clyno	3	Stevens ..	76× 85	M.	Amac	Magneto	Belt	Adjustable	32″	26″	2¼″ Dunlop	Rigid	Spring	54″	130	Yes	S. only	40 19
Corah	2½	J.A.P. ..	70× 76	A.	B. and B. ..	Magneto	to order	Adjustable	31″	26″	2″ Clincher	Rigid	Spring	53″	110	Yes	Yes	38 0
Corah	3½	Corah ..	85× 85	M.	B. and B. ..	Magneto	Belt	Adjustable	31″	26″	2¼″ Kemps'l	Rigid	Spring	57″	165	Yes	Yes	46 0
Corah	3½	Corah ..	85× 85	M.	B. and B. ..	Magneto	Chain	Variable	31″	26″	2¼″ Kemps'l	Rigid	Spring	57″	170	Yes	Yes	53 0
Dene	3½	Dene	84× 86	M.	Amac	Magneto	Belt	Adjustable	—	26″	2¼″ Clincher*	Rigid	—	—	170	Yes	Yes	45 0
Dot	3½	Dot	84× 86	M.	Amac	Magneto	Belt	Adjustable	30″	26″	2¼″ Contin'l	Rigid	Spring	53″	160	Yes	Yes	47 10
Eland	4	J.A.P. ..	85× 85	M.	B. and B. ..	Magneto	Belt	4¼ to 1	32″	26″	2¼″ Dunlop	Rigid	Spring	52″	165	No	Yes	42 10
[illegible]	3½	[illegible]	84× 86	M.	B. and B.	Magneto	Belt	Adjustable	28″	26″	2¼″ Dunlop	Rigid	Spring	54″	170	Yes	Yes	46 4

F.N.	1¾	F.N.	64× 70	A.	F.N.	Magneto	Belt	8½ to 1	31″	26″	2″ Engleb'rt	Rigid	Spring	49″	120	Yes	Yes	35	0
F.N.†	2¼	F.N.	65× 75	M.	F.N.	Magneto	Gear	6 and 10 to 1	30″	26″	2″ Engleb'rt	Rigid	Spring	49″	132	Yes	Yes	40	0
Herdtle & B.	1¼	H.B.	48× 75	A.	Vaurs	Magneto	Belt	10 to 1	to order	28″	to order	Rigid	Rigid	to order	50–70	Yes	No	28	15
Hobart-Bird	2⅛	Hobart ..	70× 78	M.	Hobart	Magneto	Belt	Adjustable	31½″	24″	2″ Dunlop	Rigid	Spring	48″	98	Yes	Yes	36	15
Humber ..	3½	Humber	83× 90	M.	B. and B. ..	Magneto	Belt	Adjustable	28½″	26″	2¼″ Dunlop	Rigid	Spring	54″	175	Yes	Yes	45	0
Humber ..	3½	Humber	83× 90	M.	B. and B. ..	Magneto	Belt	Two speed	28½″	26″	2¼″ Dunlop	Rigid	Spring	54″	195	No	Yes	50	0
Indian	4	Indian ..	82½× 93	M.	Indian	Magneto	Chain	to order	31″	28″	2¼″ to order	Rigid	Spring	53″	150	to order	Yes	52	0
James	3½	James....	86× 96	M.	Amac	Magneto	Belt	Adjustable	30″	26″	2¼″ Dunlop	Spring	Spring	58″	196	No	Yes	48	0
Kerry	3½	Abingdon	84× 86	M.	Amac	Magneto	C. & B.	to order	32″	26″	2¼″ Kerry*	Rigid	Spring	52″	192	No	Yes	50	0
Kerry	3½	Abingdon	84× 86	M.	Amac	Magneto	Belt	Adjustable	32″	26″	2¼″ Kerry	Rigid	Spring	52″	183	Yes	Yes	43	0
Lincoln-Elk	1¾	Linc'n-Elk	66× 70	M.	B. and B. ..	Magneto	Belt	6½ to 1	32″	26″	1¾″ Palmer	Rigid	Spring	49½″	105	Yes	S. only	26	0
Lincoln-Elk	3	Linc'n-Elk	79× 79	M.	B. and B. ..	Magneto	Belt	5 to 1	33″	26″	2″ Palmer	Rigid	to order	53″	150	Yes	S. only	27	10
Lincoln-Elk	3½	Linc'n-Elk	85× 88	M.	B. and B. ..	Magneto	Belt	4½ to 1	32″	26″	2¼″ Palmer	Rigid	to order	53″	160	Yes	Yes	34	0
L.M.C.	3⅛	L.M.C. ..	84× 88	A.	to order	Magneto	Belt	Adjustable	32½″	26″	2¼″ Clincher*	Rigid	Spring	54″	175	Yes	Yes	47	5
L.M.C.	3½	L.M.C. ..	85× 88	M.	to order	Magneto	Belt	Adjustable	31″	26″	2¼″ Clincher*	Rigid	Spring	52½″	168	Yes	Yes	50	8
Matchless ..	2⅝	J.A.P. ..	70× 76	A.	B. and B. ..	Magneto	Belt	5 to 1	32″	26″	2¼″ to order	Rigid	Spring	54″	125	Yes	Yes	42	0
Matchless ..	3⅛	J.A.P. ..	85× 85	M.	B. and B. ..	Magneto	Belt	Adjustable	32″	26″	2¼″ to order	Rigid	Spring	56″	150	Yes	Yes	48	6
Matchless ..	3⅛	W. and P.	85× 85	M.	B. and B. ..	Magneto	Belt	Adjustable	32″	26″	2¼″ to order	Rigid	Spring	56″	150	Yes	Yes	48	6
Midget Bicar	3½	Fafnir....	80× 80	M.	Fafnir	Magneto	Belt	Adjustable	30″	26″	2¼″ Contin'l	Rigid	Spring	50″	140	No	Yes	39	18
Midget Bicar	4¼	Fafnir....	80× 90	M.	Fafnir	Magneto	Belt	Variable	30″	26″	2¼″ Kemps'l	Rigid	Spring	50″	165	No	Yes	47	5
Minerva ..	2¾	Minerva	76× 76	M.	G. and A. ..	Magneto	Belt	4¼ to 1	34″	26″	2¼″ Contin'l	Rigid	Rigid	54″	140	Yes	Yes	36	0
Minerva ..	3½	Minerva	82× 82	M.	G. and A. ..	Magneto	Belt	4¼ to 1	34″	26″	2¼″ Contin'l	Rigid	Rigid	54″	148	Yes	Yes	37	0
Motosacoche	1¼	Dufaux	62× 70	A.	Dufaux ..	Battery	Belt	6¼ to 1	32″	26″	1¾″ Clincher	Rigid	Spring	47″	82	Yes	S. only	32	0
Motosacoche	1½	Dufaux	62× 75	A.	Dufaux ..	Magneto	Belt	5⅓ to 1	32″	26″	1¾″ Clincher	Rigid	Rigid	46″	75	Yes	S. only	33	0
Motosacoche	1½	Dufaux	62× 75	A.	Dufaux ..	Magneto	Belt	6¼ to 1	32″	26″	1¾″ Clincher	Rigid	Spring	47″	82	Yes	S. only	35	0
Moto-Reve	1½	M.R.	60× 85	A.	M.R.	Magneto	Belt	6 to 1	35″	26″	1¾″ Clincher	Rigid	Spring	49″	78	Yes	Yes	28	7
Moto-Velo	1¼	Singer....	62× 70	A.	Dufaux ..	Magneto	Belt	5 to 1	35″	26″	1¾″ to order	Rigid	Spring	49″	84	Yes	S. only	33	0
New Comet	3	Sarolea ..	76× 84	M.	Amac	Magneto	Belt	5⅓ to 1	33″	26″	2″ to order	Rigid	Rigid	54″	120	Yes	Yes	30	0
New Comet	4	J.A.P. ..	85× 85	M.	Amac	Magneto	Belt	Adjustable	33″	26″	2¼″ Dunlop	Rigid	Spring	54″	160	Yes	Yes	40	0
N.L.G.	3½	J.A.P. ..	85× 85	M.	B. and B. ..	Magneto	Belt	4½ to 1	—	26″	2¼″ R.O.M.	Rigid	to order	—	—	No	Yes	48	0
N.L.G.	4½	J.A.P. ..	85× 95	M.	B. and B. ..	Magneto	Belt	4 to 1	—	26″	2¼″ R.O.M.	Rigid	to order	—	—	No	Yes	48	10
N.L.G.	3¾	Peugeot	84× 86	M.	B. and B. ..	Magneto	Belt	4½ to 1	—	26″	2¼″ R.O.M.	Rigid	to order	—	—	No	Yes	48	15
Norton	2½	J.A.P. ..	66× 70	A.	B. and B. ..	Magneto	Belt	4¾ to 1	29½″	26″	2″ to order	Rigid	Spring	57″	105	to order	S. only	39	18
Norton	3½	Norton ..	82× 94	M.	B. and B. ..	Magneto	Belt	Adjustable	29½″	26″	2¼″ to order	Rigid	Spring	57″	178	to order	S. only	45	3
Norton	4½	Norton ..	82×120	M.	B. and B. ..	Magneto	Belt	Adjustable	29½″	26″	2¼″ to order	Rigid	Spring	57″	179	to order	S. only	47	5
N.S.U.	1½	N.S.U. ..	63× 78	A.	N.S.U.	Magneto	Belt	to order	—	26″	1¾″ Contin'l	Rigid	Spring	—	120	Yes	Yes	34	0
N.S.U.	3	N.S.U. ..	80× 80	M.	N.S.U.	Magneto	Belt	to order	—	26″	2¼″ Contin'l	Rigid	Spring	—	160	Yes	Yes	43	0
N.S.U.	3½	N.S.U. ..	85× 88	M.	N.S.U.	Magneto	Belt	to order	—	26″	2¼″ Contin'l	Rigid	Spring	—	165	Yes	Yes	46	0
N.S.U.	4	N.S.U. ..	82×105	M.	N.S.U.	Magneto	Belt	to order	—	26″	2¼″ Contin'l	Rigid	Spring	—	175	Yes	Yes	48	0
Oakleigh ..	3¾	Peugeot	84× 86	M.	to order	Magneto	Belt	4½ to 1	—	26″	2¼″ to order	Spring	Spring	—	—	No	Yes	30	0
Omega	1½	Omega ..	65× 65	A.	to order	Magneto	Chain	6 to 1	33″	26″	1¾″ to order	Rigid	Spring	49″	82	Yes	Yes	31	10
P. and M. ..	2½	P. and M.	66× 76	M.	Vapp	Magneto	Chain	5½ & 9½ to 1	28″	26″	2″ R.O.M.	Rigid	Spring	54″	125	No	Yes	47	0
P. and M. ..	3⅛	P. and M.	82× 88	M.	Vapp	Magneto	Chain	4½ & 7¾ to 1	28″	26″	2¼″ Kemps'l	Rigid	Spring	55″	182	No	Yes	55	0
P.M.C.	3½	P.M.C. ..	83½× 89	2 stroke	to order	Magneto	Belt	Adjustable	32″	26″	2¼″ Clincher*	Rigid	Spring	54″	140	Yes	Yes	42	0
Premier ..	3½	Premier ..	85× 88	M.	B. and B. ..	Magneto	Belt	4½ to 1	32″	26″	2¼″ Dunlop	Rigid	Spring	52″	160	Yes	Yes	47	10
Quadrant ..	3½	Quadrant	84×100	M.	Quadrant ..	Magneto	Belt	4½ to 1	30″	26″	2¼″ Dunlop	Rigid	Spring	52″	160	Yes	Yes	48	0
Rex Tourist	3⅛	Rex	84½× 89	M.	to order	Magneto	Belt	4½ to 1	29½″	26″	2¼″ Contin'l	Rigid	Spring	50½″	159	No	Yes	48	0
Rex de Luxe	3½	Rex	84½× 89	M.	to order	Magneto	Belt	4½ & 9 to 1	29½″	26″	2¼″ Contin'l	Rigid	Spring	50½″	195	No	C. only	59	0
Rex Sp. K'g	3½	Rex	84½× 89	M.	to order	Magneto	Belt	to order	29½″	26″	2″ Contin'l	Rigid	Rigid	50½″	141	No	S. only	42	0
Roc	4	Roc	83× 90	M.	Amac	Magneto	Belt	Two speed	32″	26″	2¼″ to order	Rigid	Spring	58″	175	No	No	47	5
Roc	4	Roc	83× 90	M.	Amac	Magneto	Gear	Two speed	26″	26″	2¼″ to order	Rigid	Spring	—	185	No	No	52	10
Torpedo ..	4½	Fafnir....	80× 90	M.	Fafnir.....	Magneto	Belt	4½ to 1	30″	26″	2¼″ Clincher	Rigid	Spring	54″	160	Yes	Yes	42	0
Triumph ..	3½	Triumph	85× 88	M.	Triumph ..	Magneto	Belt	Adjustable	32″	26″	2¼″ Clincher*	Rigid	Spring	52″	160	Yes	Yes	48	15
,, T.T.	3½	Triumph	85× 88	M.	Triumph ..	Magneto	Belt	Adjustable	30″	26″	2″ Dunlop	Rigid	Spring	49″	153	No	Yes	50	0
,, (clutch)	3½	Triumph	85× 88	M.	Triumph ..	Magneto	Belt	Adjustable	32″	26″	2¼″ Clincher*	Rigid	Spring	52″	170	Yes	Yes	55	0
V.S.	3½	Peugeot	80× 95	A.	B. and B. ..	Magneto	Belt	4⅛ to 1	30″	26″	2¼″ Peter U.	Rigid	Spring	—	180	Yes	Yes	49	0
V.S.	3½	F.N.	82× 85	A.	B. and B. ..	Magneto	Belt	4½ to 1	32″	26″	2¼″ Peter U.	Rigid	Spring	—	180	Yes	Yes	49	0

Inlet valves—A., Automatic; M., Mechanical.

* Rubber studded covers.

† Supplied in tricycle form at an extra cost of £10.

SINGLE-CYLINDER BICYCLES (*Continued*).

Name of Motor Bicycle.	H.P.	Name of Engine.	Bore and Stroke. mm.	Inlet Valves.	Name of Carburetter.	Ignition.	Transmission.	Standard Gear or Gears.	Height of Saddle from Ground.	Diam. of Wheel.	Standard Size and Make of Tyres.	Standard Frame.	Standard Forks.	Length of Wheel-base.	Weight, Unladen. lbs.	Pedalling Gear.	Stand and Carrier.	Price. £ s.
Waverley ..	3½	J.A.P. ..	85× 85	M.	B. and B. ..	Magneto	Belt	Adjustable	31″	26″	2¼″ to order	Rigid	Spring	56″	160	No	Yes	45 0
Wanderer ..	1½	Wanderer	60× 70	A.	Wanderer ..	Magneto	Belt	7½ to 1	31″	26″	2″ S.E. ..	Spring	Spring	49″	110	Yes	Yes	35 14
Wanderer ..	2½	Wanderer	70× 85	A.	Wanderer ..	Magneto	Belt	5¾ to 1	30″	26″	2¼″ Contin'l	Rigid	Spring	53″	150	Yes	Yes	40 19
Wilton	1½	Dufaux ..	62× 70	A.	Dufaux	Magneto	Belt	6½ to 1	33″	26″	1¾″ Clincher	Rigid	Spring	48″	85	Yes	Yes	35 0
Wilton	2½	J.A.P. ..	70× 76	A.	Amac	Magneto	Belt	4 to 1	33″	26″	2″ Palmer	Rigid	Spring	54″	95	Yes	Yes	40 0
Wolf	1½	Stevens ..	63× 66	A.	Stevens	to order	Belt	6 to 1	36″	26″	2″ Wolf ..	Rigid	Rigid	45″	78	Yes	No	23 0
Wolf Royal	1½	Stevens ..	63× 66	A.	Stevens	to order	Belt	6 to 1	33″	26″	2″ Wolf ..	Rigid	Rigid	47″	85	Yes	No	25 0
Wolf Grand	2	Stevens ..	70× 70	A.	Amac	Magneto	Belt	5½ to 1	33½″	26″	2″ Wolf ..	Rigid	Spring	50½″	92	Yes	Yes	35 10
Zenith	3½	Zenith ..	85× 88	M.	B. and B. ..	Magneto	Belt	Variable	31″	26″	2¼″ Clincher*	Rigid	Spring	51″	175	No	Yes	54 12
Zenette ..	3½	Zenith ..	85× 88	M.	B. and B. ..	Magneto	Belt	Variable	31″	26″	2¼″ Clincher*	Spring	Spring	58″	198	No	Yes	60 18

TWIN-CYLINDER BICYCLES. V TYPE ENGINES.

Advance ..	6	Advance	76× 82	A.	B. and B. ..	Magneto	Belt	Adjustable	28″	26″	2″ Hermetic	Rigid	Spring	59″	—	No	Yes	50 8
A.S.L.	5	Peugeot	75× 75	A.	B. and B. ..	Magneto	Belt	3¾ to 1	27½″	22″	2¼″ Moseley	Air sp'ng	Air sp'ng	54″	175	No	Yes	60 0
Bat	5	J.A.P. ..	76× 85	M.	B. and B. ..	Magneto	Belt	4 to 1	32″	26″	2¼″ R.O.M.*	Spring	Spring	55″	185	No	Yes	58 0
Bat	7	J.A.P. ..	85× 85	M.	B. and B. ..	Magneto	Belt	3½ to 1	32″	26″	2½″ R.O.M. *	Spring	Spring	55″	200	No	Yes	60 0
Brough	4	Brough ..	70× 75	A.	B. and B. ..	Magneto	Belt	Adjustable	30½″	26″	2¼″ to order	Rigid	Spring	52″	160	to order	Yes	45 0
Brough	5	Brough ..	75× 76	A.	B. and B. ..	Magneto	Belt	Adjustable	30½″	26″	2¼″ to order	Rigid	Spring	52″	175	to order	Yes	50 0
Chater-Lea	6	J.A.P. ..	70× 95	A.	to order	Magneto	Belt	4½ to 1	33″	26″	2¼″ Dunlop	Rigid	Spring	55″	—	Yes	Yes	54 10
Clyno	6	Stevens ..	76× 82	M.	Amac	Magneto	Belt	Adjustable	30″	26″	2½″ Dunlop	Rigid	Spring	60″	195	No	S. only	51 9
Dot	5	Peugeot	75× 75	A.	Amac	Magneto	Belt	Adjustable	30″	26″	2¼″ Contin'l	Rigid	to order	49″	165	No	Yes	50 0
Dot	7	Peugeot	80× 94	A.	Amac	Magneto	Belt	Adjustable	30″	26″	2¼″ Contin'l	Rigid	to order	49″	175	No	Yes	52 10
Eland	6	J.A.P. ..	70× 95	A.	B. and B. ..	Magneto	Belt	4 to 1	32″	26″	2¼″ Dunlop	Rigid	Spring	52″	175	No	Yes	47 10
Enfield	2¼	Enfield ..	52× 70	M.	Enfield	Magneto	Belt	6½ to 1	35″	26″	2″ Contin'l	Rigid	Spring	54″	110	Yes	Yes	39 18
Indian	5	Indian ..	70× 83	M.	Indian	Magneto	Chain	to order	31″	28″	2¼″ to order	Rigid	Spring	53″	165	to order	Yes	57 0
Indian	7	Indian ..	82½× 93	M.	Indian	Magneto	Chain	to order	31″	28″	2½″ to order	Rigid	Spring	53″	178	No	Yes	67 0
Matchless ..	5	Peugeot	75× 75	A.	J.A.P.	Magneto	Belt	4½ to 1	32″	26″	2½″ to order	Rigid	Spring	57″	160	Yes	Yes	52 10
Matchless ..	7	Peugeot	80× 94	A.	J.A.P.	Magneto	Belt	4½ to 1	32″	26″	2½″ to order	Rigid	Spring	57″	165	Yes	Yes	54 12
Matchless ..	5	J.A.P. ..	85× 65	M.	J.A.P.	Magneto	Belt	3½ to 1	32″	26″	2¼″ to order	Rigid	Rigid	57″	175	No	Yes	57 15
Matchless ..	6	J.A.P. ..	70× 95	A.	J.A.P.	Magneto	Belt	4½ to 1	32″	26″	2½″ to order	Rigid	Spring	57″	165	Yes	Yes	52 10
Matchless ..	6-8	J.A.P. ..	to order	M.	J.A.P.	Magneto	Belt	4 to 1	32″	26″	2½″ to order	Rigid	Spring	57″	175	Yes	Yes	54 14
Midget Bicar	5	Peugeot	75× 75	A.	Amac	Magneto	Belt	Adjustable	30″	26″	2¼″ Contin'l	Rigid	Spring	60″	180	No	Yes	47 5
Minerva ..	4½	Minerva	70× 75	M.	G. and A. ..	Magneto	Belt	4¼ to 1	34″	26″	2½″ Contin'l	Rigid	Rigid	54″	170	Yes	Yes	45 0
Minerva ..	8	Minerva	80× 85	M.	G. and A. ..	Magneto	Belt	3⅜ to 1	31″	26″	2½″ Contin'l	Rigid	Rigid	54″	180	Yes	Yes	48 10
Moto-Reve	2	M.R.	50× 70	A.	M.R.	Magneto	Belt	6⅝ to 1	31″	26″	2″ Contin'l	Rigid	Spring	54″	90	Yes	Yes	37 16
Moto-Reve	2½	M.R.	52× 70	A.	M.R.	Magneto	Belt	6 to 1	31″	26″	2″ Contin'l	Rigid	Spring	54″	92	Yes	Yes	39 18
Moto-Reve	2¾	M.R.	50× 85	A.	M.R.	Magneto	Belt	5½ to 1	31″	26″	2″ Contin'l	Rigid	Spring	54″	94	Yes	Yes	42 0
New Comet	3½	Peugeot	66× 70	A.	Amac	Magneto	Belt	Adjustable	32″	26″	2¼″ Dunlop	Rigid	Spring	53″	150	Yes	Yes	40 0
New Comet	5	Peugeot	75× 75	A.	Amac	Magneto	Belt	Adjustable	32″	26″	2½″ Dunlop	Rigid	Spring	54″	165	Yes	Yes	45 0
New Comet	7	Peugeot	80× 94	A.	Amac	Magneto	Belt	Adjustable	32″	26″	2¾″ Dunlop	Rigid	Spring	54″	185	Yes	Yes	50 0
N.L.G.	5	Peugeot	75× 75	A.	B. and B. ..	Magneto	Belt	4 to 1	—	26″	2¼″ R.O.M.	Rigid	to order	—	—	No	Yes	52 0
N.L.G.	7	Peugeot	80× 94	A.	B. and B. ..	Magneto	Belt	4 to 1	—	26″	2½″ R.O.M.	Rigid	to order	—	—	No	Yes	54 0
N.L.G.	8	J.A.P. ..	85× 85	M.	B. and B. ..	Magneto	Belt	4 to 1	—	26″	2½″ R.O.M.	Rigid	to order	—	—	No	Yes	60
Norton	5	Norton ..	66× 95	M.	B. and B. ..	Magneto	Belt	Adjustable	29½″	26″	2¼″ to order	Rigid	Spring	57″	180	to order	S. only	52 10
Norton	6	Norton ..	75× 85	A.	B. and B. ..	Magneto	Belt	Adjustable	29½″	26″	2¼″ to order	Rigid	Spring	57″	180	to order	S. only	54 12
Norton	7	Norton ..	75× 95	M.	B. and B. ..	Magneto	Belt	Adjustable	29½″	26″	2¼″ to order	Rigid	Spring	57″	184	to order	S. only	57 15
Norton	8	Norton ..	85× 85	M.	B. and B. ..	Magneto	Belt	4 to 1	29½″	26″	2¼″ to order	Rigid	Spring	57″	190	to order	S. only	59 17
N.S.U.	2½	N.S.U. ..	52× 74	M.	N.S.U.	Magneto	Belt	to order	—	26″	2″ Contin'l	Rigid	Spring	—	130	Yes	Yes	43 0
N.S.U.	4	N.S.U. ..	64× 85	M.	N.S.U.	Magneto	Belt	to order	—	26″	2¼″ Contin'l	Rigid	Spring	—	175	Yes	Yes	52 0
N.S.U.	6	N.S.U. ..	75× 90	M.	N.S.U.	Magneto	Belt	to order	—	26″	2½″ Contin'l	Rigid	Spring	—	190	Yes	Yes	55 0
Oakleigh ..	5	Peugeot	75× 75	A.	to order	Magneto	Belt	4½ to 1	—	26″	2½″ to order	Spring	Spring	—	—	No	Yes	40 0

Premier ..	3¾	Premier ..	66× 80	M.	B. and B. ..	Magneto	Belt	4½ to 1	32″	26″	2¼″ Dunlop	Rigid	Spring	54″	165	No	Yes	52 10
Rex Tourist	5	Rex	77½× 79	A.	to order	Magneto	Belt	4½ to 1	29½″	26″	2¼″ Contin'l	Rigid	Spring	50½″	171	No	Yes	51 0
Rex de Luxe	5	Rex	77½× 79	A.	to order	Magneto	Belt	4½ & 9 to 1	29½″	26″	2¼″ Contin'l	Rigid	Spring	50½″	207	No	C. only	62 0
Rex Sp. K'g.	5	Rex	77½× 79	A.	to order	Magneto	Belt	to order	29½″	26″	2″ Contin'l	Rigid	Rigid	50½″	153	No	S. only	45 0
Roc	5	Roc.....	75× 80	M.	Amac	Magneto	Belt	Two speed	32″	26″	2½″ to order	Rigid	Spring	—	185	No	No	57 15
V.S.	5	Peugeot	75× 75	A.	B. and B. ..	Magneto	Belt	4½ to 1	30″	26″	2½″ Peter U.	Rigid	to order	—	200	Yes	Yes	55 0
V.S.	7	Peugeot	80× 95	A.	B. and B. ..	Magneto	Belt	4½ to 1	32″	26″	2½″ Peter U.	Rigid	to order	—	215	Yes	Yes	57 0
Wanderer ..	3	Wanderer	60× 72	A.	Wanderer ..	Magneto	Belt	6 to 1	31″	26″	2¼″ S.E.	Spring	Spring	53″	130	Yes	Yes	44 2
Waverley ..	3½	Peugeot	66× 70	A.	B. and B. ..	Magneto	Belt	4½ to 1	31″	26″	2¼″ to order	Rigid	Spring	54″	135	No	Yes	45 0
Waverley ..	6	J.A.P. ..	76× 85	M.	B. and B. ..	Magneto	Belt	Adjustable	31″	26″	2½″ to order	Rigid	Spring	56″	175	No	Yes	50 0
Waverley ..	8	J.A.P. ..	85× 85	M.	B. and B. ..	Magneto	Belt	Adjustable	32″	26″	2½″ to order	Rigid	Spring	57″	185	No	Yes	55 0
Wolf	2½	Stevens ..	60× 76	A.	Amac	Magneto	Belt	5 to 1	34″	26″	2¼″ to order	Rigid	Spring	50″	110	Yes	Yes	40 0
Wolf	3	Stevens ..	63× 66	A.	Amac	Magneto	Belt	5 to 1	34″	26″	2¼″ to order	Rigid	Spring	51″	128	Yes	Yes	46 10

OTHER MULTI-CYLINDER BICYCLES.

Douglas§	2¾	Douglas	60× 60	A.	Douglas ..	Magneto	Belt	5½ to 1	32″	26″	2″ R.O.M.	Rigid	Spring	52″	105	Yes	Yes	39 18
F.N.‡	5	F.N.	52× 57	A.	F.N.	Magneto	Gear	5 to 1	31″	26″	2½″ Engleb'rt	Rigid	Spring	57″	190	Yes	Yes	32 10
Roc‡	5	Roc.....	—	M.	Amac	Magneto	Gear	Two speed	26″	26″	2½″ to order	Rigid	Spring	—	190	No	No	63 0
Scott‖	3½	Scott ..	66¾× 63½	2 stroke	Scott	Magneto	Chain	4.3 & 7.3 to 1	30″	26″	2¼″ Palmer	Rigid	Spring	54″	155	No	Yes	57 15
T.A.C.‡ ..	6	T.A.C. ..	60× 60	A.	Amac	Magneto	Gear	Variable	23″	26″	2½″ Contin'l	Spring	Spring	62″	198	No	C. only	68 5

LADIES' BICYCLES.

Matchless ..	2½	J.A.P. ..	70× 76	A.	B. and B. ..	Magneto	Belt	5½ to 1	30″	26″	2″ to order	Rigid	Spring	51″	120	Yes	Yes	42 0
Motosacoche	1	Dufaux	52× 70	M.	Dufaux ..	Magneto	Belt	7½ to 1	31″	24″	Michelin	Rigid	Spring	49″	80	Yes	No	42 0
New Comet	2½	J.A.P. ..	70× 76	A.	Amac	Magneto	Belt	5½ to 1	30″	24″	2″ Dunlop	Rigid	Spring	52″	120	Yes	Yes	45 0
Norton	2½	J.A.P. ..	70× 76	A.	B. and B. ..	Magneto	Belt	4¼ to 1	29½″	26″	2″ to order	Rigid	Spring	57″	107	to order	S. only	42 0
Omega	1½	Omega ..	65× 65	A.	to order	Magneto	Chain	6 to 1	33″	26″	1¾″ to order	Rigid	Spring	49″	82	Yes	Yes	31 10

PASSENGER MOTOR CYCLES.

Name of Tricar, Sidecar, or Sociable.	H.P.	Name of Engine.	Bore and Stroke. mm.	Inlet Valves.	Name of Carburetter.	Ignition.	Trans-mission.	Standard Gear or Gears.	Height of Saddle or Back Seat fr'm Ground.	Diam. of Wheel.	Standard Size and Make of Tyres.	Rear Frame.	Front Frame.	Length of Wheel-base.	Weight, Un-laden. lbs.	Stand and Carrier.	Price. £ s.
A.C. Tricar, *T., O.F.*	5	A.C.	80×102	M.	A.C.	Magneto	Chain	to order	—	26″	2½″ Michelin	Spring	Spring	60″	390	No	78 15
A.C. Sociable, *T.* ..	5	A.C.	80×102	M.	A.C.	Magneto	Chain	to order	—	26″	2½″ Michelin	Spring	Spring	60″	448	No	89 5
Advance	6	Advance	76× 82	A.	B. and B. ..	Battery	Chain	to order	35″	26″	2½″ Hermetic	Rigid	—	63½″	—	No	78 15
Advance, *O.F.*	9	Advance	90× 90	A.	B. and B. ..	Battery	Chain	to order	35″	30″	3½″ Hermetic	Spring	—	—	—	No	126 0
Chater-Lea	4	C.L.	85× 86	M.	to order	Magneto	Chain	to order	33″	26″	2½″ Dunlop	Rigid	Spring	58″	—	Yes	60 18
Chater-Lea, *O.F.* ..	6	J.A.P. ..	76× 85	M.	B. and B. ..	Magneto	Chain	to order	33″	26″	2½″ Dunlop	Rigid	Spring	58″	—	Yes	71 8
N.S.U.. *S.*	6	N.S.U. ..	75× 90	M.	N.S.U.	Magneto	Belt	to order	—	26″	2½″ Contin'l	Rigid	Spring	—	—	Yes	82 0
N.S.U.. *T.*	6	N.S.U. ..	75× 90	M.	N.S.U.	Magneto	Belt	to order	—	26″	2½″ Contin'l	Rigid	—	—	—	Yes	85 0
Oakleigh Sociable, *S.*	4½	Stevens ..	—	A.	Amac	Magneto	Chain	5 & 10 to 1	—	26″	2½″ to order	—	—	—	—	—	65 0
Rex Sidette, *S.*	5	Rex	77½× 79	A.	to order	Magneto	Belt	4½ & 9 to 1	29½″	26″	2½″ Contin'l	Rigid	Spring	50½″	319	C. only	75 0

Inlet valves—A., Automatic; M., Mechanical. S.E., Shamrock-Excelsior. * Rubber studded covers. *S.*, Including sidecar. *T.*, Tricar. *O.F.*, Open frame.
§ Twin-cylinders horizontally opposed. ‡ Four cylinders vertical. ‖ Twin-cylinders inclined.

Water Cooling on Motor Bicycle Engines.

A REPLY BY "AILETTE."

I AM delighted to see that my short article on the above subject has created interest among both contributors and correspondents. "Rotator" has so nearly followed my own views, and has practically voiced them, so that I need do no more than refer to his article. Mr. Brooker's reference in his letter in the issue of the 17th ult. is in my opinion of considerable importance, as it emphasises a fact which appears to have escaped the notice of "Ixion," namely, that on the brave little Mototri-Contal water-cooling was the secret of success. He does not mention about its valves breaking, their pitting, or the rapid wear of the piston rings, but he says that the cooling on the thermo-spyhon system was the life and soul of the small engine. When first I penned the few lines advocating makers to experiment further in the direction under discussion I little thought such interest would be taken in the matter, and I must admit that I tackled the subject somewhat half-heartedly. Now, however, so much keenness has been displayed, and users of water-cooled motor cycle engines never before heard of are coming to the front and are voicing their experiences, I am glad I gave vent to my feelings, and am now encouraged to continue.

Air v. Water Cooling on Brooklands.

I should like very much to see machines with engines of equal cubical capacity water and air-cooled pitted against one another, say, in a twenty miles race all out on Brooklands, with the finish up the test hill. Under such conditions I feel sure that the water-cooled engine would win.

I am an old air-cooling enthusiast, and although I plead guilty to having been converted, I do not for a moment think that the air-cooled engine will be superseded for a very long time. I merely want to see the motor cycle compare more favourably with the car in reliability. Many will say it is equal, but it is not actually, as anyone who cares to compare the results of the Scottish A.C. car trials with the A.C.U. motor cycle trials will find out. Mechanical troubles, nearly always put down to bad oil, are more frequently encountered with motor cycle than with car engines.

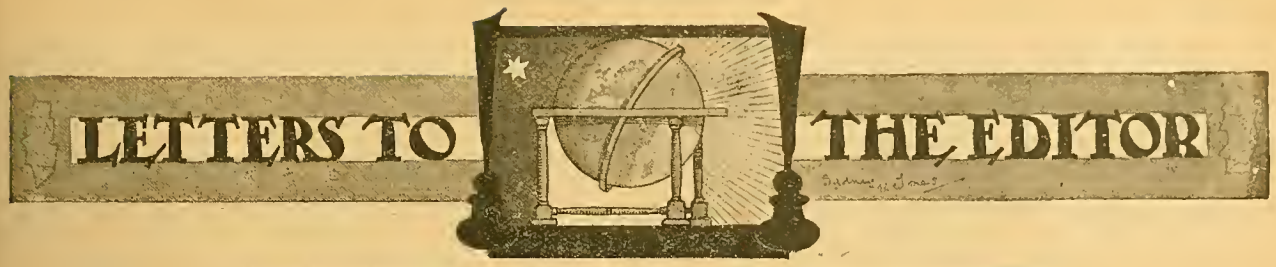
Referring to "Ixion's" criticism, I do not think it is in the least convincing. Granted that his M.M.C. and De Dion engines did not commit the seven faults enumerated in his observations, he does not say what would have happened had either been fitted with a water-cooled head. The addition would doubtless have added weight, but I feel quite sure he would have found that the machine with water-cooling would have been a far better stayer, even as was the miniature Mototri-Contal of which Mr. Brooker writes. Some years ago I took great delight in ascending Hindhead on an air-cooled tricar without changing down, simply by playing various tunes on my air spark and throttle levers. Such driving gives one the sense of conquering great difficulties, but water-cooling will do away with the necessity for all this, and though I regret it, I fear we must advance.

On a recent occasion I had an opportunity to cross the Little St. Bernard Pass on a car. On this great highway the road winds up apparently interminable zigzags to the sky, with a practically consistent gradient on the French side of 1 in 12, and about 1 in 8 on the Italian side. Would that such existed in England on the British Isles. Now on a climb like this a 2¾ h.p. water-cooled motor bicycle, geared about 5 to 1 or just a shade under, should, provided the rider exercised an ordinary amount of skill, make a comfortable job of the sixteen miles of ascent, but I very much doubt if an air-cooled machine would make a clean climb of it. What I want to prove is that, provided water-cooling is tried and made so as to endure what it will have to endure, we shall have a machine which will maintain its efficiency on long gradients, which will require less skill to drive it, and will keep in tune longer than the best modern motor bicycle. Surely it would be better to begin a series of experiments now than wait for the "better understanding of metallurgy" which will give us valves that do not break, to which "Ixion" vaguely refers. Classical readers may remember that Ixion's own mount which he garages in Tartarus is not cooled at all, but perpetually warmed by a nice fire.

Green's Water-jacketed Engine.

I am intensely interested by Mr. Catt's experiences with Green's water jacketed engine, and no one would be more pleased than I were Mr. Green to pay a little of the attention he is now giving to engines for aeroplanes which *may* fly to motor bicycle engines which will *undoubtedly* run. Mr. Catt's experiences are of real value, as they have been lengthy, but I fail to understand why he, who is presumably an amateur, should be so pleased with the arrangement, and yet firms in the Midlands, who had the chance of taking it up, did not do so. In making a water-cooled motor cycle engine the great point to be aimed at is to increase the weight as little as possible, and to do this it is necessary to study radiator efficiency very closely, so as to ensure the maximum amount of cooling surface, and thus be able to carry the minimum quantity of water. In conclusion, I want it to be distinctly understood that I do not expect the present type of air-cooled machine to be immediately superseded, but I want to see some enterprising firm produce a standard four-cycle water-cooled engine for motor cycles, and prove that what I have written is correct, or at any rate partly so.

The Continental Tyre and Rubber Co., Ltd., have now opened a branch depot at 63, Victoria Street, Bristol, to deal more promptly with their increasing business in South Wales and south-western counties.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Road Dangers at Night.

[4547.]—I have noticed several times complaints of unlighted traffic on your roads. Most of the drivers of cattle, etc., out here, if they hear a motor, strike a match or two. Hint enough to slow down and look out for danger.

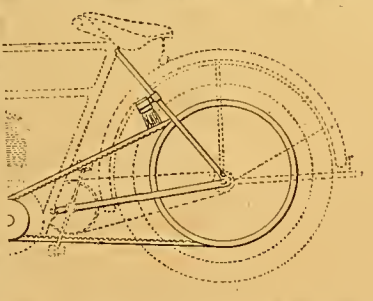
Parramatta, N.S.W., Australia. W. FLANDERS.

[4548.]—In view of some possible safeguard for night riders, may I add an experience of mine in this line. Coming home one dark night in a slight fog, going carefully, I first suddenly found myself in the middle of a flock of sheep, and wonder to this day how I managed to pull up and tumble off without serious accident. The men in charge were strolling along some twenty-five yards in the rear. A little further along I noticed that the fog appeared rather thicker ahead and so slowed up, and found that what my strong lamp had only made appear as thicker mist was in reality a huge load of straw in the middle of the road; no rear light, and the driver comfortably seated on the shafts ambling along as if the road was his personal property. Close in town I finished up my slow ride in a mixed crowd of sheep and cattle spread out on the road just as the first lot. The drovers, quite indifferent to my vociferous tootings seemed to treat my complaint (couched in fairly plain terms) as a good joke, and consigned me to nether regions. I certainly think that motor traffic should claim some regulation as to the carrying of green or distinctive lights by drovers and slow vehicles for their protection.

P. W. WALKER.

How to keep a Belt Dry and Clean.

[4549.]—It may interest your readers to know of a very simple arrangement I fitted to my Triumph to keep the belt always dry and clean. I have used it since last September in all weathers, and never had any belt slip. I purchased for 1s. a real bristle metal bound joiners' glue brush, and cut off the handle short. I then made an adjustable holder of 3in. × ⅜in. steel in the form of a figure 8, and fitted it on the back stay so as to allow the brush just to touch the belt as it leaves the pulley rim.



In practice I find the brush throws off any mud splashings quite clear, and as no mud or wet is carried past the brush my magneto is always clean.

It seems such a simple thing that I am surprised no one has tried it before; in dry weather it only requires pulling on one side. W. HEMSWORTH.

Racehorse v. Motor Cycle.

[4550.]—Having been for a number of years in one of the leading racing stables, and for the past eight years a motor cyclist, I was much interested to read the above query in your excellent paper; but I cannot endorse your remarks "That the motor bicycle should easily beat the racehorse." In the first place it would be impossible to obtain the "going" highly suitable to both competitors, and whereas a long and steady rain is necessary to make Epsom Downs good going for a racehorse, these conditions would be anything but *couleur de rose* for the motor cycle, and, on the other hand, should the Downs be hard and in their best condition for the motor cycle, the racehorse would be at a disadvantage, and would be very likely to break down if set to carry 13 stones over such a long distance. Probably the result would depend on the class and ability of the said racehorse, as you are well aware that there is as much difference between racehorses as, say, a 1902 1¼ h.p. Troubler and a six-cylinder Napier. However, taking the four-legged competitor to be an animal of equal merit with a Metropolitan Stakes winner, I will bet odds that the racehorse will win under any atmospheric conditions whatsoever.

Has Mr. Skertchley ever ridden a motor bicycle on a racecourse or similar pasture? I have, and I think he will find that fifteen to twenty miles per hour will be his best average, and he must not compare Epsom racecourse even with a fifth rate grass cycle track. I have ridden my motor cycle many times to Epsom Races, and have found that only on very short and clean patches of the turf is it possible to ride in anything like comfort at, say, ten to fifteen miles per hour. FATHERLESS.

[4551.]—In reply to Mr. L. E. Skertchley *re* motor cycle *v.* racehorse, if it is to be the Metropolitan course I should say the racehorse would be the winner. As you may know, it winds round like the figure 8, and, of course, you cannot go round at even thirty miles per hour. I may add I lived in Epsom for a good many years, and know every inch of the ground, and am also an enthusiastic motor cyclist. Provided the horse is a first-class one, my idea is it should win. I shall make an effort to see the race if possible, as I think it would be very interesting. W. MELLISH.

Club Life.

[4552.]—I read the leaderette in last week's issue *re* club life, also that your correspondent is a Northern clubman. As a member of the York County Motor Cycle Club, I can say that we should be only too pleased to have as many members of your correspondent's disposition as possible. I could not say that we are all between 40 and 50 years of age, but I can truthfully say that we have no "speed merchants." We certainly hold competitions, but rely on pleasurable touring for the success of the club. In fact, sociability was the main idea at its formation.

If your correspondent and other readers similarly disposed will apply to our secretary, W. E. Asquith, 11, Moreland Street, Leeds, I am sure he would be only too pleased to send them a fixture list as soon as we have it printed, and they will then see that we shall have a fairly busy touring season during 1910, provided we have fine weather. The principal tours (week-ends) for Easter and Whitsuntide have been arranged for Brooklands and the Lake District respectively. There is also a run fixed for every Saturday or Sunday during the summer, about 100 miles each, to some historical or otherwise interesting place.

With regard to the dust nuisance mentioned by your worthy self, our generally accepted rule is to ride in couples, keeping a fair distance behind anybody in front.

F. SCOTT.

Balancing Motor Cycle Engines.

[4553.]—With reference to an article which appeared some months ago on the balancing of engines, by "Winkie," it will no doubt be of interest to your readers to hear how the theory propounded by that gentleman works out in practice.

Fortified by a copy of the article in question, I conveyed my engine (a 1905 2¾ h.p. Zedel) to a local engineering firm,

the Colville Motor Works, High Road, Chiswick, for I would observe *en passant* that I found the straight-edge method for home balancing suggested by "Winkie" not nearly sensitive enough. The necessary weighing and drilling being accurately and cheaply performed by that firm, my engine was once more assembled and tried. The result certainly astonished me, for with a becoming modesty quite in keeping with the naïve simplicity of his *nom de plume*, "Winkie," only claimed an improvement in balance, whereas in practice I find that not only is this rendered perfect, but the maximum rate of revolution is enormously increased, as is also the power.

In subsequent conversation with Messrs. Colville, they informed me that the counter bob was 8½ ounces too light, and further surprised me by adding that in several engines which had recently passed through their hands for balancing on the above principle they had found them to be in some cases almost 2 lbs. out, but that in each case the correction enormously benefited the power as well as the balance.

In conclusion, I would strongly dissuade those who might care to profit by my experience from attempting to perform the operation at home, as, apart from the hopelessness of trying to test the balance without the aid of a fairly big lathe to swing the flywheels in, the time and energy involved in the removal of half a pound of metal with a hand drill are incredible, and not worth the trouble when the cost of having it done by an experienced motor engineer is so comparatively trifling. L. M.

Cost of taking a Motor Cycle to India.

[4554.]—I have just read with interest your reply to "Taking a Motor Cycle to India" in your issue of December 13th, and having only just received a cycle and a sidecar from the old country thought perhaps the enclosed would be of interest to you or some of your readers. I shall be obliged if you would let me know through the columns of your valuable paper the best book on the upkeep of a motor cycle.

THOMAS E. SAMSON.

Madras Presidency, India.

CHARGES INCURRED IN ENGLAND ON THE EXPORTING OF A MOTOR CYCLE AND SIDECAR.

	£	s.	d.	£	s.	d.
Case for 3½ h.p. single-cylinder bicycle ...	1	0	0			
Case for sidecar		10	0			
Carriage of above cases from Cleckheaton to London		16	0			
Steamer freight to Calcutta per s.s. *Jelunga* P. and O.	3	11	2			
Insurance		8	10			
				6	6	0
CHARGES INCURRED IN CALCUTTA.						
Customs entry, stamp, landing, wharfage, and clearing		10	0			
Import duty	3	17	6			
Cart and coolie hire		4	8			
Agency charges		6	0			
				4	18	2
Total				£11	4	2

[With regard to Mr. Samson's query, he cannot do better than purchase "Motor Cycles and How to Manage Them" and "Hints and Tips for Motor Cyclists," each 1s. 2d. post free from *The Motor Cycle* Offices, 20, Tudor Street, London, E.C.—ED.]

Lightweights v. Heavyweights.

[4555.]—In reply to letter 4463, I doubt Mr. B. G. Durkin's statements. Might I ask what lightweights he really has ridden? From his remarks I think he must be somewhat more than young, active, etc., and knows little or nothing of lightweight motor cycles. A. D. TYLER.

[4556.]—I have been reading with much interest the discussion in your paper on the above, and was much amused at the letter from Dr. Gaskell in your issue of January 10th. I utterly disagree with him. My work requires everything he objects to in the heavyweight, and for which he praises the lightweight. My 3½ h.p. Triumph does everything that one can want, and therefore I maintain that it is merely a man's own requirements that make the real test. I start and stop as many as twenty or thirty times in a couple of miles, and my 3½ h.p. is (1.) Handy to get about on. (2.) Has every advantage he claims for a lightweight machine. (3.) It goes in and out of gates and doorways with no trouble, and is not the least trouble to "uphold." (4.) Has the extra advantage of absolute reliability when heavily laden, and never fails to start as promptly as any lightweight can be got to start, and does not give the belt trouble that a lightweight will give.

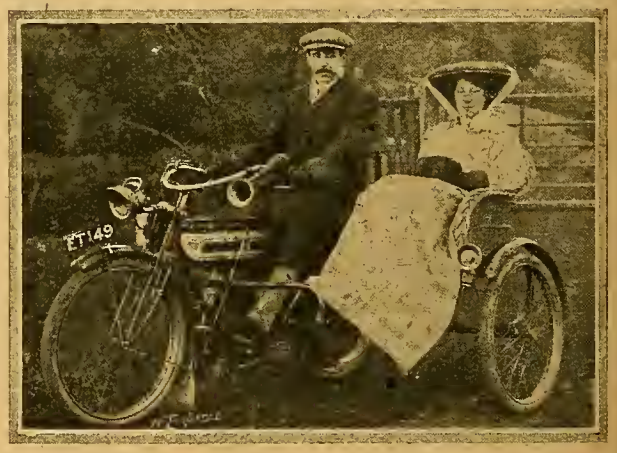
Now I maintain that just because I find the 3½ h.p. the best for the very kind of work he says the lightweight alone can do, and is the handiest for, it does not follow that in other hands the lightweight is not better, or that in my hands the lightweight would not give satisfaction. My experience of a lightweight has been one of trouble and annoyance, and barring the P. and M. I do not consider a lightweight has the least advantage over the 3½ h.p. (my experience, please; others have rightly other views perhaps), and so I say we ought not to say as he does that the lightweight is far better than the heavyweight. Anyway, after years of experience I find a 3½ h.p. of good reliable make has every advantage that a lightweight machine has, and the advantage of extra power and reliability and freedom from belt trouble that hardly any of the lightweights can yet show.

(REV.) R. MEASURES.

Experiences with a 3½ h.p. and Sidecar.

[4557.]—Many of your readers seem doubtful as to how a good 3½ h.p. performs with a sidecar and extra passenger, and I enclose photograph of my machine. I may say that my trusty Triumph has taken my wife and self many thousands of miles without any trouble whatever.

It may be interesting for you to know that I have no two-speed gear, but the ratio is as low as 6 to 1 with Whittle



The writer of the accompanying letter, Mr. G. W. Knapton, with his motor cycle and sidecar

belt. Many of your readers will know the hilly nature of Rotherham and district, and it is very rare I have to touch a pedal, even with a passenger. I may say that the combination comes in very handy for my business. I have to cover sixty miles every day in all weathers, and then I have to use it for cinematographing, etc.

Hoping this will be of interest, G. W. KNAPTON.

Antiquated yet Efficient.

[4558.]—I was very much interested in "Ixion's" remarks against water cooling for motor cycle engines in your issue of January 24th, and entirely agree with him that air is a better medium than water for the cooling of cycle engine cylinders, but with regard to the heavy weight of old pattern engines I cannot quite agree with him.

I should like to mention that I still ride a 1903 Ormonde motor cycle fitted with a 2¼ h.p. Antoine-Kelecom engine, which is light in weight, extremely efficient, flexible and fast, and is capable of hauling my 12 stones weight over Hindhead in Surrey at a good round twenty-five miles per hour without pedal assistance—this after having run on the road for six seasons.

I wonder if owners of 1910 models will be able to say the same of their mounts in the year 1916. R. BAMFORD.

The 1910 End-to-end Trials Route.

[4559.]—Referring to the proposed alteration of route for the 1910 Land's End to John-o'-Groat's Trial, I should like to suggest a slight alteration through the county of Somerset, which, if followed, would add considerably to the interest taken in the trials in this part of the country (Bristol). The route followed through the West of England is a singularly easy one, and is really no test for the modern motor cycle, there are a few short hills before reaching Exeter, but after there are no hills of any importance excepting Red Hill, which is really very easy to climb, as the gradient is not excessive.

I should suggest that when Cross is reached the route should be through Axbridge and the famous Cheddar Gorge, over the Mendips, down Harptree Hill (a fine test for brakes), through the villages of Chew Stoke and Chew Magna to Dundry, joining the main road just before arriving at Bristol.

This would include one of the best test hills in the West, and would give the competitors an opportunity of admiring the beauties of the Mendips. The road is quite good, and the surface of the hills excellent. It would add two miles only to the distance, making it a 1,000 miles run.

An idea of the route can be gathered from the contour book (Gall and Inglis), Western Division, Contour Section, No. 847, which is joined about three miles above the Cheddar Gorge at the Castle of Comfort Inn. A.E. 158.

Winter Riding.

[4560.]—In "Ixion's" "Occasional Comments" last week he comments on "the one dangerous surface," and I quite agree with him that it is impossible to keep up with ordinary tyres, as I found to my cost some weeks ago, when I had nine skids in a thirty mile ride.

The roads on the 31st ult. were exactly similar, yet by winding strong sash cord round the back wheel of my Triumph between every spoke, I have ridden with absolute safety and up several steep hills ice-covered and with the water running down them.

I am writing this in case it may be of use to any riders who may get stranded by going out in the early morning. The thaw coming on afterwards will soon make the roads into the condition described by "Ixion," and so render their return difficult or almost impossible.

I may say I rather fancy this sash cord tip may be useful to motor cyclists who have smooth or badly worn non-skid tyres, and who want to go out, but are afraid of skidding in bad weather. Of course, I have not tried the effect of ordinary roads on the cord, but intend to do so, as if it is successful it would be rather a good way of using up old non-skid tyres which have lost their properties through wear, but which may be otherwise perfectly good and sound.

P. WARBURTON.

The Motor Cycle in the United States.

[4561.]—The writer is very much interested to note in the issue of January 3rd the article by "Transatlantic"—"The Motor Cycle in the United States." The most interesting portion to his mind is the statement regarding the cause of the popularity of chain transmission.

The writer has ridden a machine since the second year the Hendee Co. commenced to manufacture the Indian, and started with chain transmission. Having read through the columns of *The Motor Cycle* of the advantages (?) of belt over chain I purchased last year, in spite of advices to the contrary, a 5 h.p. Indian, belt driven. In this season with a mileage of something over 4,000 I have used no less than nine different belts; three of these were the best rubber belts of English manufacture, and one a leather belt also of English manufacture; the balance were American leather belts with one exception, which was American canvas and rubber. The poorest mileage in every case was obtained with the English rubber belt, about 300 miles being the average life of same. They gave trouble by stretching and by cracking through from the canvas to the outside of the rubber, and I am given to understand that the makers state, in defence of their product, that the climate of this country is such that the belts will not last. On the last American belt used up to date the mileage has been about 800 miles, and the belt seems to be in fairly good condition at the present time. This would seem to refute the statement made by your correspondent regarding the shoddiness of the American product.

It might be directly in keeping at this point to say that the writer has sold his belt driven machine and is going back to the chain drive. The only advantage of the belt which the writer can see is the quietness, and this one advantage will certainly not offset the many disadvantages experienced, while with these improved chains now on the market this one point of superiority is being rapidly reduced.

Going through the various articles that have appeared in your columns, especially those regarding American records, the American motor cyclists appear to be classed with the direct descendants of Ananias, but be this as it may, one of your own authorities commenting on the Tourist Trophy Race, certainly gives the chain transmission a good word as compared with the belt drive.

In closing, the writer wishes to bring out the point that the supremacy of chain transmission in the United States is due to three things: Freedom of trouble, high efficiency, as proven in endurance runs and track meets, and minimum cost of maintenance, and not to the poorness of American belts as stated by "Transatlantic."

Mass., U.S.A. A DISGUSTED BELT USER.

[America must be a peculiar place! Fancy a "best rubber belt of English manufacture" which will not last more than 300 miles on a 5 h.p. twin—a day's ride—when similar belts on similar powered motor cycles in England usually last about 3,000 miles.—ED.]

Finish for All-weather Machines.

[4562.]—I am very pleased to note that of late in the correspondence and in your editorial remarks criticism has appeared and comment made regarding the excessive and unnecessary amount of plated surface on most motor cycles, which, unless carefully and frequently looked after, soon loses its finish and deteriorates.

In my own case I keep all bright work heavily vaselined; this treatment as applied to handle-bar, head springs, cranks, etc., is a comparatively easy matter, but the wheels that dredge up mud and wet, coating themselves at the same time, I decided required something more durable than vaseline. Accordingly, at the beginning of this winter I had spokes and hubs painted aluminium, which looks well, is easily washed and dried, thus saving much trouble; the rims being enamelled were not touched. Finding this satisfactory I specified, in placing my order for a 1910 motor cycle, that hubs, spokes, brake rods, and mudguard stays should be finished aluminium, rims black enamel; this the makers have most kindly agreed to do, thereby rendering me under an obligation to them for diverging from their standard practice.

I now hope in a few weeks' time to have a motor cycle that, if not noted or conspicuous for a Stanley Show brilliance, will be, better still, largely weather-proof, and capable of having dust and mud hosed off without a crop of rusty marks appearing afterwards.

This letter has been prompted, mainly in consequence of a question that appeared in *The Motor Cycle* of January 10th from "H.W.H.," who asked your opinion *re* a black enamelled finish on those parts usually plated, and if I may I would suggest that your correspondent should try an aluminium finish, which I certainly think he would find satisfactory and infinitely more pleasing to the eye than all black, which, judging by a new pedal bicycle I inspected recently, presents a very sombre and funereal appearance.

R. G. LINDSAY.

SUMMARY OF OTHER CORRESPONDENCE.

The Stevenson Patent Valve Spring Lifter Co. write: "In reply to letter 4519 in *The Motor Cycle* of the 24th ult., may we inform 'Plug' that we know that a valve spring lifter as suggested by 'Plug,' when the cotter is burred after a large mileage, would only result in the breaking of the radiating fins. A valve can be removed with our lifter in under thirty seconds."

EXPERIENCES WANTED.

"Tandem" would like readers' experiences with the Millennium two-speed gear for engine-shaft.

"H. E. R." would like readers' experiences of the Z.L. twin-cylinder engine, aslo the Nala two-speed gear.

"LC 7611" would like readers' experiences of the Wall Auto Wheel, particularly with regard to reliability, ease of starting, and control in traffic.

"Edgar" would like readers' experiences with a two-speed gear and free-engine or free engine alone fitted to a Douglas.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Carbide.

Can you please tell me if there is any way to make carbide last longer? I charge my generator before going out of an evening, and it seems to last only about two hours, and on first lighting flares up in a most alarming manner.—K. W. S.

Obviously you turned on the water too much when you first set the lamp going. The water should be turned on very gently, or you may turn it on to the usual amount and then turn the tap back until the normal amount of gas is given off. You may also find coated carbide to be slightly more economical.

Studded Covers for Preventing Side-slip.

My 3½ h.p. motor bicycle is fitted with ordinary plain tyres, and skids badly in mud, especially when passing traffic on cambered roads; the front tyre will not grip. Shall I fit steel-studded covers or rubber-studded covers? Which is safer for touring?—P. C.

On very muddy roads a steel-studded cover is best for the rear wheel, but for town riding it is better to use a rubber-studded cover, or a combination rubber and steel-studded cover. In any case it would be advisable to have a rubber studded cover on the front tyre. As we infer, steel-studded tyres are the most efficient on muddy roads, but should the road surface be covered with ice or snow they are likely to cause trouble.

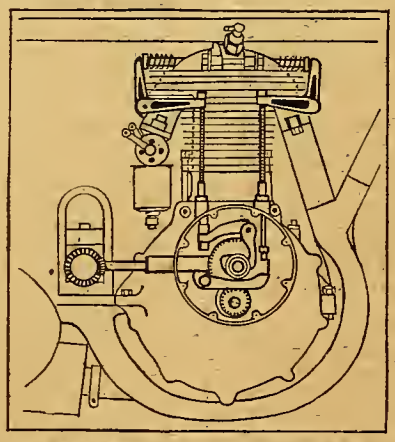
A Red-hot Cylinder.

My engine is a 3⅜ h.p. old pattern. At the end of a four or five miles run the metal portion of the sparking plug and the engine in the neighbourhood of the inlet valve becomes vividly red-hot. The gas is throttled right down and the engine will take full air. (I am certain that the mixture is not too rich.) Is there any danger, owing to the engine getting in this state? It sometimes fires when switch is "off." But the casting is quite smooth, and there is no carbon deposit. Also there is no electrical leakage.—H. J.

We imagine that you have a habit of driving with the spark lever too much retarded. This would quickly cause overheating. If you attend to this, and also lubricate more frequently, we feel sure you will not notice the same symptoms, provided, of course, that (1) the cylinder and piston are clear of carbon deposits, (2) the casting is smooth internally, (3) the exhaust valve lifts to its full extent, and is timed to commence opening when the piston is within one-tenth of the end of the firing stroke. The premature firing is probably due to the plug points becoming white-hot.

Using Too High a Gear.

Can you please suggest anything to improve the power of my 1907 3½ h.p. bicycle, magneto ignition, geared 4½ to 1, Longuemare carburetter, 9 jet and 21 choke tube, magneto timed correctly and sparks regularly, automatic inlet valve which opens ½in., exhaust valve opens ¼in? It is timed to close when piston reaches top of stroke and opens before it reaches bottom. I have cleaned piston and cylinder head, also ground in valves.



A motor cycle engine with horizontal valves in the cylinder head, operated by push rods and bell cranks. It is the Royal Pioneer, an American make. Observe the bevel drive for the magneto.

Compression will stand twelve stones on pedal for about half a minute. Machine runs very fast on the level (forty to forty-five miles an hour), and will take full air when going all out, but it will not climb short steep hills, nor a long gradual hill of about a mile long, and about 1 in 12 gradient. When slowing down on a hill the engine knocks, and I have to retard the spark. I do not think it is overheating.—J.K.

Your trouble seems to be entirely due to the high gear you are using. If you lower the ratio to 5 to 1 the machine will perform better on hills, but the speed on the level will be reduced. We should advise you first of all to try the effect of a lower gear.

Engine Knocking with Spark Retarded.

I notice a severe knocking in the engine, especially on hills, and no matter how I retard the spark it still continues, but if I partly raise the exhaust lifter the knocking stops. Some little time back I had to have a new connecting rod and piston, which when returned made the compression space just half what it was formerly. Probably this has caused the trouble. It is a 3 h.p. Singer, belt drive, and before the accident I never knew what it was to have a knock in the engine, and there was just about half the vibration.—C. R.

The knocking, we should say, is entirely due to the compression ratio having been increased. If you made no amends for the longer connecting rod, by placing packing between the cylinder and crank case, it would be advisable to fit a metal or fibre washer to raise the cylinder higher, and so lower the compression. Or you might return to a shorter rod. Other causes of the knocking when the spark is retarded are (1) too high a gear for the weight carried, (2) a loose bearing, and (3) excessive carbon deposits.

Local Taxation Exemptions.

Is it compulsory for me to pay a tax for my motor cycle, which I only use for business purposes, namely, carrying papers for the *Evening News*? I had the Revenue officials call on me three years ago, when I purchased a tricar, and they informed me that I should have to pay a tax for that as well, because at that time I was using the motor cycle for pleasure, but I have not ridden it for such since.—H. J.

We are afraid that you will have to pay the tax, as there seems to be no way of getting out of it at the present time. Of course, provided you have a carrier fixed to your machine, adapted for the carrying of your newspapers, and your name and address are painted on this in letters not less than 1in. in height, you should, according to the present state of the law, be exempt; but in the recent case of Moore *v.* Lewis it was pointed out that it was possible to use the motor vehicle in question for other than business purposes, and although the defendant assured the court that he had not used it for his own pleasure, the case was decided against him. The only hope seems to be to wait until there is some chance of amending the law.

The Control of the Spark Lever.

My experience so far has only been with a motor bicycle fitted with accumulator ignition. I have now ordered a Douglas with magneto. Shall I with magneto ignition follow the old rules, viz., retard for starting and open throttle wide, throttle down and advance spark for average speed and economy, open throttle and retard spark for long steep hills, open throttle and advance spark for rushing short steep hills? Also what oil should be used for lubricating magneto, and how often necessary?—H.R.

You will find magneto ignition to be a real improvement. The method of driving, however, must be slightly altered. The control of the spark lever depends entirely upon the timing of the magneto. For instance, most machines are timed in such a way that the lever is always left fully advanced whether for starting, slow running, or fast hill-climbing. Other makers time the magnetos so that they should be two-thirds advanced for starting and general running, and only retarded very slightly when it is desired to travel especially slowly. You alter the spark advance far less with a magneto than you do with accumulator ignition. With the magneto you set the spark fairly well forward (fully forward if you wish to travel fast) and drive entirely on the throttle, naturally adjusting the air to suit, and only retard when the engine knocks, and that slightly. For the magneto, you may use any medium grade oil, such as gas engine oil. With the modern ball bearing magneto very little oil is needed, a few drops every 200 or 300 miles will be sufficient.

Engine Stiffness. Knocking.

(1.) I have a late model 1909 two-speeder, and have a difficulty in starting, as the piston seems to gum up after standing overnight, and it is almost impossible to turn the starting handle. I have tried injecting paraffin, petrol, and a mixture of oil and petrol, but it takes a large quantity of any of them and much hard work with the starting handle to free the engine. Lubricating oil used is Price's air-cooled. The local agent has not so far been able to improve matters. When once the engine is warm the piston is quite free, and the machine easily started. Can you suggest a remedy? (2.) Another trouble is the tendency of the engine to knock at all speeds below 20 m.p.h., even with ignition well retarded. Hill-climbing is bad unless hill can be rushed. Thinking gear possibly too high I opened adjustable pulley as much as possible; this had no apparent effect except to make low speed very slow. Can it be due to wrong adjustment of carburetter or timing of ignition?—V.H.

(1.) The thickest air-cooled oil is not suitable during cold weather, as the engine so quickly gums up. Try the same brand B quality, or use half water-cooled oil and half air-cooled. Probably after you have used the engine a little longer it will not gum up in the same way. We can offer you no better advice other than to give it a copious dose of paraffin either before putting the machine away after a run or before starting. (2.) We should say that your engine is timed too fast if knocking occurs with the lever retarded, and especially as hills can only be rushed. If the engine will run slowly and you can make it misfire by opening the air lever fully when the throttle is about half open, the carburetter should be adjusted correctly.

Engine Not Responsive to the Throttle.

My Lagonda tricar runs well enough, but does not respond to opening the throttle on hills. I conclude that the carburetter (Longuemare H. or E.) needs adjustment. Would you kindly tell we what is probably the defect and remedy? Also would you tell me—(1.) The effect of larger or smaller choke tube? (2.) The effect of increased or diminished number of apertures in spray? (3.) The effect of raising or lowering weight on needle valve? (4.) Would not a small disc of lead placed on top of float have the same effect as lowering weight on valve needle?—A. L. L.-S.

It is quite possible that the failure to respond to the throttle may be due to the cylinder head and piston requiring to be cleaned of carbon deposit. If the carburetter were once right it is unlikely that it has got out of adjustment of its own accord. (1.) If the engine starts easily and takes the full amount of air even when running at slow speeds, and when you open the throttle there is absolutely no difference in power, and there are signs of over-heating, the choke tube is too small and a larger one is necessary. If, however, the machine starts with great difficulty, misses fire, and seems unable to attain its full power with the throttle fully open and spark advanced, too large a choke tube is fitted and a smaller one is required. (2.) The same remarks apply to the jets, but it will often be found that, though the adjustment is apparently correct, there is not quite as much power as might be desired, and sometimes the fitting of a slightly larger jet will improve matters. The whole thing is a matter for careful experiment. (3.) Moving the weight on the needle nearer to the point raises the level of the petrol in the jet. A lead washer slipped on top of the float would have the same effect. What we should recommend you to do is to look up the hints on "Carburetter Adjustment" in "Motor Cycles and How to Manage Them." In this chapter the matter is thoroughly dealt with, and your questions are practically answered. Loss of power, of course, need not always be due to the carburetter, but might possibly be owing to weak compression, worn lifting cams, and to the valve springs being to weak.

Gear Ratio of Track Racer.

A friend and myself are divided in opinion as to what gear ratio C. R. Collier used on his 85 × 60 mm. engined Matchless-J.A.P. with which he won *The Motor Cycle* Challenge Cup, riding 50 miles 858 yards in the hour, last October. We should be glad if you would tell us.—C. V. C.

The gear ratio used by C. R. Collier on the occasion stated was $3\frac{2}{3}$ to 1.

A motor cycle "breakdown" competition — quite an interesting diversion during the winter months arranged by the Liverpool Motor Club. The Premier motor cycle has been deranged, and a competitor (S. W. Carty, late of Newcastle) is endeavouring to put the machine in order against the watch (held by A. J. Moorhouse), S. W. Philpott and E. L. Fehr making notes and conducting the competition.

MORGAN'S PETROL TURBINE.

A Reply to "Incandescent" and V. Grunwell.

I WOULD like to reply to the criticisms of "Incandescent" and Mr. V. Grunwell. The outer shell of the turbine is simply to retain the pressure of the gases in the combustion chambers, the spaces between the vanes being just large enough to carry away the gases to the exhaust slots sufficiently fast to maintain that pressure. I do not rely on the velocity of the gases formed by the combustion, but on the pressure which acts on the base of the combustion chamber. "Incandescent" says that the turbine will not run because the piston has to pump air against the pressure of the combustion.

Now, the volume of air thus pumped is small compared with the volume of the products of combustion, so that the work done in forcing the air into the combustion spaces is much less than the work done by the products of combustion. It is just this difference between the two quantities of work which drives the turbine. There is no doubt that the turbine will work, just as a steam boiler is made to feed itself with water against its own pressure.

The Action of the Eccentric.

"Incandescent" also takes exception to the action of the eccentric on the rollers in the piston. Now while the eccentric is moving the piston forward there is certainly a space between the eccentric and the hindmost roller, but after the piston has moved halfway along the cylinder this distance diminishes, until at the end of the stroke the rear roller is actually in contact with the eccentric, and ready for the pressure of the return stroke. I have not provided for a commutator, but, instead, a complete insulated ring mounted on the drum and connected to the sparking plugs. The electric circuit is completed by an insulated switch mounted on the side plate, which makes contact with the ring when necessary to start the turbine.

Heat Generated and Method of Control.

Mr. Grunwell thinks that the heat generated will be very destructive. Why? The two exhaust slots are very large, occupying together about half the area of the rim of the drum, so that the hot exhaust gases escape easily, immediately, and silently. Of course, the heat lost is very great, but surely this means that the turbine is correspondingly cool. As in ordinary internal combustion engines, it is the pressure that is utilised, not the heat, and that engine is the best which disposes of the heat in the best and quickest way.

With regard to the absence of control over the petrol supply, the demand of the turbine for petrol is purely automatic, depending entirely on the speed of the drum, which is in turn controlled by the throttle. No doubt the turbine could be regulated quite independently of the throttle by means of the main petrol tap.

R. E. MORGAN.

TWO-STROKE ENGINES IN AMERICA.

I HAVE been much interested and pleased to note the progress of the two-stroke engine in England as portrayed by *The Motor Cycle*. Perhaps readers would be interested to hear of my experiences with two-stroke engines in general and two-stroke motor cycle engines in particular.

My first motor cycle had an engine of the four-stroke variety, and was one of the first to be used in California. In 1903 I graduated from the four-stroke to the two-stroke, and I shall never go back to the four-stroke engine on any account.

In 1903 I met a man in Oakland, California, who made two-stroke motor cycles, and I soon became interested and placed an order for one. At that time he only made motor cycles to order, so I had to wait several months for delivery.

As soon as I received my machine I started out for a short trip, but oh! such trouble. For me the machine absolutely refused to go at first, and when it did go it was well nigh impossible to slow it down. However, after the first week of trouble, things began to improve and the machine ran all right.

A Two-stroke Machine in Use since 1903.

This machine has now been running since March 3rd, 1903, and has carried me many thousands of miles, over vile roads or no roads at all, without a bit of trouble. The cost of repairs has been *nil*, as it has never been in a shop. Of course there is absolutely nothing to get out of order in the engine except the rings and bearings, and none of these have ever been removed or replaced.

The belt used is of specially tanned leather, and is round instead of V. Its diameter is about one and one-sixteenth inches, and the belt complete costs about ten dollars (two pounds). This may seem expensive but these belts seem to last for ever. I run my round belt in 28° V pulleys, and have absolutely no slipping even in rainy weather.

A Single-cylinder 7¼ h.p. Engine.

My latest motor bicycle is a 1910 racing model. The cylinder bore and stroke are 3½in. by 3¾in. and the engine develops about 7¼ b.h.p. The wheels are 28in. in diameter, and the engine gear ratio is 2¾ to 1. This engine develops its rated power at 2,500 r.p.m., but can be speeded up to 3,000 r.p.m. if necessary.

Of course, my touring mount is not so big as this. It has a cylinder with a 3in. bore and a 3⅛in. stroke, and only develops about 4 b.h.p. The weight of the machine is about 185 lbs., of which the engine weighs 40 lbs. Personally I like heavy roadster machines, as the lightweight has not the power and speed that I prefer in this country of "no speed limits."

All my machines have single-cylinder engines with dry battery ignition.

California is nearly ideal for motor cycle touring in summer or winter, as we do not know what snow or cold is like.

Some of the most beautiful scenery in the world is to be found in California, and it is not surpassed by Switzerland or any country I have ever visited.

A. N. RAMSAY.

GRADUA GEAR

Infinitely variable and free engine.

Winner of Coventry Hill Climb.
Winner of Barnsley Hill Climb.
Winner of Herts. County Hill Climb.
Winner of Prince's Cop Hill Climb.
Fastest single cylinder variable gear at Sutton Bank.

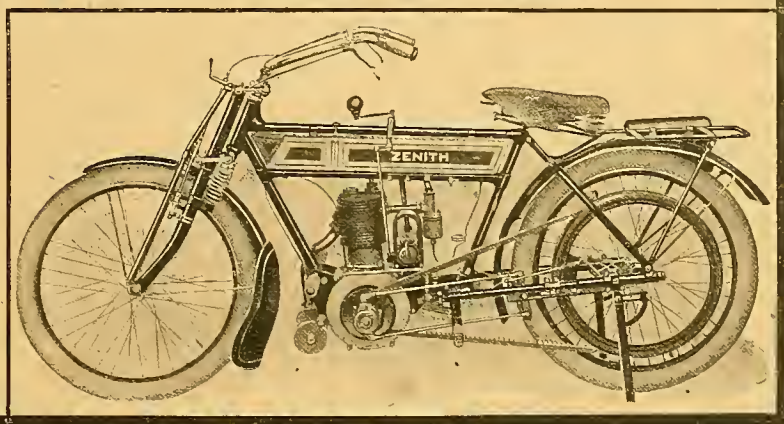
Winner at Brooklands Inter-'Varsity Races.
Holder of Brooklands Test Hill Record.
Full marks for everything A.C.U. 1,000 Miles Trials.
The only gear to carry out an observed traffic ride.
And many other successes.

THE GRADUA GEAR WAS BARRED IN AN /09 HILL CLIMB ON ACCOUNT OF ITS EXTRAORDINARY EFFICIENCY.

The Gradua Gear
is only fitted to
ZENITHS,
and made as a conversion set for
TRIUMPHS.

Full particulars on application.

ZENITH MOTORS, LTD., Weybridge.



THE L.M.C. STARTS LIKE A CAR.

AT HOME SATISFACTION.

London,
Nov. 21st, 1909.

Gentlemen,

I have found the gradient map of our London hillocks. Muswell Hill is where I tried your excellent Free Engine and Pulley. You will see that it is a good test of its efficiency to start a machine from stand still in the middle with rider and luggage weighing 17 stone and to take it up to the top. It is as good a test as you want and your Free Engine can do what a two-speed gear would, and at a fifth of the cost and weight.

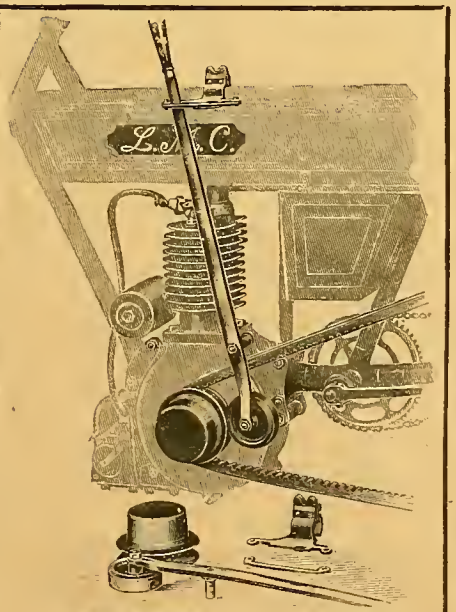
The steepest of the three is Swains Lane. Needless to say the L.M.C. flew up it, in fact I ran up on half throttle except over the steep portion. The machine was in full touring condition and had not had any adjustment for 400 miles. I used standard jet. Highgate of Hill course was nothing to test it. It went up as though it were level ground.

Yours truly,
H.B.

The Ideal Touring Machine.

More practical refinements and improvements than any standard motor bicycle.

Price complete with Free engine, 50 guineas.



L.M.C. FREE ENGINE & AUTO VARIA PULLEY.
(PATENT APPLIED FOR.)
SUITABLE ANY STANDARD ENGINE, Price 63/-

ABROAD RELIABILITY.

The Rectory, Condobolin,
New South Wales,
Australia.
13/12/'09.

Dear Sirs,

I have now ridden my L.M.C. for twelve (12) months over some of the worst roads in New South Wales and in all weathers. I cannot speak too highly of its behaviour. I have not had a single stoppage the whole time. I sometimes ride ninety (90) miles and take three services in the day. Reliability in running is a necessity in my work, as one has to ride against time, allowing very narrow margins for mishaps. I have complete confidence in the L.M.C. motor cycle, and have not the slightest hesitation in recommending it.

Another point in its favour is the smoothness of its running, the vibration being reduced to a minimum.

Yours faithfully,
S. N.

The smoothest running machine made.

Magneto gear driven in dustproof oil bath.

New footboard ball bearing starter.

L.M.C. Machines are designed by Mr. W. J. Lloyd, formerly Mechanical Director of the late Quadrant Cycle Co., Ltd., Birmingham.

The LLOYD MOTOR & ENGINEERING CO., L.M.C. WORKS, 132, Monument Rd., Birmingham.

L.M.C. parts for original Quadrants can be supplied from stock. New List Printing.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), on Tuesday morning previous to the date of issue.

When possible advertisements received at Coventry on the Wednesday will be inserted.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland. Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X
Scotland.

SECTION XI.
Ireland and Isle of Man.

No. 2064.—2½ h.p. 1910 PHELON & MOORE, light weight model, two-speed gear, only once used, not ridden fifty miles; guaranteed ..... 42 Guineas
3¾ h.p. 1910 Twin-cylinder PREMIER, once used only, too powerful for user; guaranteed .. £45 0
No. 2067.—1¾ h.p. 1909 MOTOSACOCHE, magneto ignition, Druid spring forks, condition as new; guaranteed. Price, lowest £24 10
No. 2060.—3½ h.p. T.T. TRIUMPH, 1909 model, nice condition; guaranteed ..... 32 Guineas
No. 2000.—3½ h.p. 1909 PREMIER, as new, horn, mirror, toolbag, tools, and number-plates; guaranteed ..... 30 Gns.
No. 2001.—3½ h.p. 1909 TRIUMPH, standard model, in very good condition ..... 33 Gns.
No. 2002.—3½ h.p. 1909 BAT, spring frame and forks, magneto, Continental non-skid tyres, as new; guaranteed ..... 35 Gns.
No. 1973.—3½ h.p. 1909 TRIUMPH, Clincher studded tyres, usual tools, in excellent condition; guaranteed £35 0
No. 1977.—3½ h.p. 1910 ARNO, magneto, B. and B. handle-bar controlled carburetter, spring forks, Continental non-skid tyres; this machine has only been run twenty miles; guaranteed .. £35 0
No. 1979.—2¾ h.p. Magneto F.N., h.-b. control, spring forks and spring seat, in excellent condition; guaranteed £17 10
No. 1982.—3½ h.p. TRIUMPH, 1908, magneto, h.-b. control, Clincher tyres, in excellent condition; guaranteed £32 0
No. 1941.—3½ h.p. 1909 Standard TRIUMPH, Palmer Cord tyre on front, new Palmer Cord rubber-studded on back, usual tools; guaranteed £36 0
No. 1952.—3½-4 h.p. BAT Racer, M.O.V., magneto, 1909, one of the fastest 3½ h.p. machines ever been raced on Brooklands, fitted with Cowey speedometer, lately the property of H. H. Bowen; guaranteed £28 0
No. 1961.—3½ h.p. 1907 TRIUMPH 1908 engine, magneto, Roc two-speed gear, lamps, horn, etc., in first-class condition; guaranteed ..... 30 Gns.
No. 1967.—3¾ h.p. N.S.U., magneto, 26in. wheels, good tyres, engine, enamel and plating as new; guaranteed ..... 20 Gns.
No. 1926.—3½ h.p. VINDEC SPECIAL, magneto, Truffault forks, Peugeot engine; guaranteed .. £25 0
No. 2032.—2 h.p. New 1909 Standard MOTO-REVE 28 Gns.
No. 2033.—5 h.p. VINDEC, Roc two-speed gear, magneto, lamp, horn, two toolbags, pump, enamelled cream, smart machine ..... 28 Gns.
No. 2006.—5 h.p. 1908 TWIN VINDEC, rubber-studded tyres, magneto, adjustable pulley, toolbag, tools, and horn; guaranteed £25 0
No. 2007.—3½ h.p. BROWN, Whittle belt, long bars, low seat, horn, toolbag, etc.; guaranteed 10 Gns.
No. 2010.—3½ h.p. N.S.U., magneto, h.-b. control, spring forks, good tyres, horn, toolbag, and spare belt; guaranteed ..... 18 Gns.
No. 2011.—5-6 h.p. A.C. Tricar, 1909 model, with lamps, horn, and apron, as new ..... Offers
No. 2014.—3½ h.p. Bat-engined Motor Cycle, Chater-Lea No. 6 frame, round brass tanks, footboards, Continental tyres, very smart machine; guaran'd £15 0
No. 2018.—2¾ h.p. WHITLEY, vertical engine, 26in. wheels, low frame; guaranteed £6 10
No. 2019.—3½ h.p. 4-cyl. F.N., good tyres, enamel, plating, engine, etc., perfect; guaranteed £20 0
No. 2021.—3½-4 h.p. MATCHLESS J.A.P., overhead valves, magneto, J.A.P. carburetter, Druid forks, good tyres, footrests, horn, toolbag, carrier, and stand, as new; guaranteed ..... 28 Gns.
No. 2013.—3½ h.p. 1909 TRIUMPH, standard model, excellent condition, with Cowey speedometer; guaranteed £38 0
No. 2024.—3½ h.p. 1909 MINERVA, magneto, spring forks, in very good condition; guaranteed £25 0
No. 2025.—5 h.p. RILEY Tricar, open frame, wheel steering, two speeds, quantity of spares, three lamps, horn, etc., a very smart lot; guaranteed £38 0
No. 1993.—2¾ h.p. Genuine DE DION BAT, good tyres, lamp, horn, speedometer, toolbag, and tools; guaranteed £12 10
No. 1994.—3½ h.p. 1909 TRIUMPH, Clincher non-skid tyres, Mabon free engine, horn, spare belt and spare adjustable pulley; guaranteed ..... 36 Gns.
No. 2027.—3½ h.p. New 1909 Standard EXCELSIOR; guaranteed £37 10

Machines offered in this column are guaranteed by Wauchope's.

First Cheque secures each Bargain.

WAUCHOPE'S,

9, Shoe Lane, Fleet Street, LONDON, E.C.

Phone: 5,777 Holborn. Telegrams: "Opificer, London."

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may addressed to numbers at "The Motor Cycle" Off When this is desired, 2d. will be charged for registrat and three stamped and addressed envelopes must be s for forwarding replies. Only the number will appea the advertisement. Replies should be addressed, " ooo, c/o 'The Motor Cycle,' Coventry"; or if "Londo is added to the address, then to the number given, "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown pers may deal in perfect safety by availing themselves of Deposit System. If the money be deposited with "' Motor Cycle," both parties are advised of this receipt, upon intimation of the arrival and acceptance of goods, the money is forwarded less a charge of 1s. registration. The time allowed for a decision after rec of the goods is three days, and if no sale is effected, e party to the transaction pays carriage one way. For transactions exceeding £10 in value, a deposit fee 2s. 6d. is charged. All deposit matters are dealt w at Coventry, an: cheques and money orders should made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive answer to their enquiries are requested to regard silence as an indication that the goods advertised h already been disposed of. Advertisers often receive many enquiries that it is quite impossible to reply to e one by post.

MOTOR BICYCLES FOR SALE

SECTION I.

Northumberland, Cumberland, Durham, a Westmoreland.

MINERVA Motor Cycle, 3h.p., good running or £11, or best offer.—Walker Bros., Cockermo

3h.p. Fafnir Motor Cycle, new tyres, long handle-b low seat-pillar, footboards, climb anything, gua teed perfect, tools, etc.; £17.—Todd, Wolsingham, D ham.

SECTION II.

York and Lancashire.

1909 Triumph, good as new; £39.—Sproat, Raw Leeds.

5½h.p. Twin N.S.U., magneto, spring forks; £14 Horner, 28, Burley Rd., Leeds.

3½h.p. P. and M., 1908, in splendid order; £30.— 3,998, *The Motor Cycle* Offices, Coventry.

1910 Twin Premier, new; £45; cash with order; exchanges.—Evic Cycle Co., Whittingham, Pres

1909 Brown, 3½h.p., magneto, handle-bar control, condition; £29.—Cross, Triumph Agent, Rot ham

7h.p. Peugeot Druids, Brown and Barlow H.B. trol, perfect; £23.—Hall, 26, Oxford Rd., Wate Liverpool.

PHELON and Moore, 1908, 3½h.p., H.B. control good condition, spares; £32.—Dearlove, The Harrogate.

1910 Triumphs, unerated; £45 15s., cash order; no exchanges.—Evic Cycle Co., Whitt ham, Preston.

3½h.p. Rex, fast, reliable, condition as new; £1 Anderson, 846, Chester Rd., Gorse Hill, Stret Manchester.

FOR Sale, two 1908 Triumphs, in first-class co tion.—For particulars, apply J. L. Balmf Ormskirk, Lancs.

HALIFAX.—Rex motor cycles, 100 to select fr £8 to £75; special list on application — M Exchange, Westgate, Halifax.

MANCHESTER Motorists can obtain Ariel, I bury, Douglas, Norton, R.M.C. two-stroke official agent, Gourlay, Fallowfield.

A FEW 1909 New Bradbury 3½h.p. Motor Cycles, one 1908 Bradbury, 3½h.p., accumulator igni perfect order, £18.

3½h.p. Minerva, with Phœnix two-speed gear, an sidecar machine; £20.

GOOD 3½h.p. Minerva, perfect condition; £16.

GOOD 3½h.p. Bat Tricar, very handy machine: £

GOOD Stock of Tyres, tubes, belts, horns, etc.

SOLE Agent for the famous Bradburys; good allow for old machines in exchange.—Parry, 68, G St., Oldham.

OTOR BICYCLES FOR SALE.

DION-BAT, magneto, Palmer tyres, low build, fast, and reliable; £15.—Hall, Colville Dairy, Talbot, W.

BLE, 3h.p., M.O.V., good running order; sell or exchange; £6 10s.—S. Green, 145, Manor Rd., ley.

MPSTEAD for Bargains.—We undertake gradual payments or exchanges.—Address, 5, Heath St. 2678 P.O.

MPSTEAD.—1909 Triumph, splendid condition studded tyres, all accessories; £55, special bar-

MPSTEAD.—1909 2½h.p. Douglas, magneto and spring forks, all accessories, new condition; £28.

MPSTEAD.—3h.p. N.S.U., splendid condition with all accessories; bargain price, £10.

MPSTEAD.—4½h.p. F.N., splendid condition, with all accessories, late model; bargain, £24.

MPSTEAD.—Sole London agents for Lincoln Elks, all models in stock; special price to trade.

MPSTEAD for all latest 1910 models; gradual payments or exchanges; delivery from stock; iting.

MPSTEAD.—Triumph, 3½h.p., 1907, new tyres, splendid condition; £26; all accessories.

MPSTEAD.—5-6h.p. F.N., 1909, splendid condition, all accessories; £29 10s.; 4½h.p. F.N., odel, £28.

MPSTEAD.—3½h.p. Fafnir, M.O.V., very low, Chater-Lea frame; £13, all accessories.

MPSTEAD.—1909 Minerva, 3½h.p., magneto and spring forks, £27; Lincoln Elk, 1909, magneto, ondition, £19 10s.

MPSTEAD.—5-6h.p. F.N., 4-cyl., brand new, latest 1910 model; £40, with latest improvements.

MPSTEAD.—1909 late Moto-Reve, new condition, with all accessories; £23, special bargain.

MPSTEAD.—3½h.p. Minerva, handle-bar control, ood condition, all accessories; £11.

MPSTEAD.—3½h.p. 1908 magneto Rex, very low, pended condition; offers wanted.

MPSTEAD.—1909 Moto-Reve, shop-soiled only two hundred miles; splendid bargain, £27.

MPSTEAD.—Magneto Triumph, splendid condition; £20.—Rey, 5, Heath St., Hampstead. Tel.: 7 P.O.

UDES'.—Zenith, 3½h.p., two-speed gear, Fafoir engine, steel studded rear tyres, Clincher front, saddle, sprung frame, an ideal machine; £20.

UDES'.—Minerva, 2¾h.p., M.O.V., Longuemare carburetter, practically new tyres, coil and accuor ignition, B100/4 saddle, Gloria belt; £10.

UDES'.—Minerva, 2½h.p., A.O.V., Longuemare carburetter, very good tyres, Bowden valve lifter 9.

UDES'.—Lincoln Elk, 3h.p., vertical engine, 26in. wheels, two brakes, 1908 model B. and B. carr, low built; £12.

UDES'.—Kerry, 5h.p., twin, 26in. wheels, low built, good tyres, Longuemare carburetter; £15.

UDES'.—Hmmber, 2½h.p., good tyres, chain drive. Humber pattern carburetter; £9.

UDES'.—Quadrant, 2¾h.p., good tyres; a bargain at £7.

UDES'.—Triumph, 3½h.p., brand new 1909 model; listed by makers at £48, our price £40.

UDES'.—Minerva, 3½h.p., 1909 model, Minerva spring forks, magneto, automatic carburetter, throughout; £26.

UDES'.—Rex de Luxe, 3½h.p., 1908 model, Bosch magneto, spring forks, cantilever seat, Palmer etc., two speeds, and Roc clutch; £26.

UDES'.—Brown, 2¾h.p., magneto, spring forks, low saddle position, B. and B. carburetter, Palres, etc.; £14.

UDES'.—F.N., 1¾h.p., vertical, 1908 model, spring forks, magneto, practically new tyres, very fine ight; £17.

UDES'.—Motosacoche, 1¾h.p., Druid forks, handlebar control, 26in. wheels, Clincher tyres, magcition, very fine order and condition; £19.

UDES'.—Clyde, 2¾h.p., vertical engine, M.O.V., Bosch magneto, B. and B. carburetter, good order; £15.

UDES'.—Singer, 3h.p., vertical engine, good tyres, Bosch magneto, handle-bar control, tank recently led; will clear at £13 for cash.

UDES'.—Minerva, 3½h.p., vertical engine, magneto, spring forks, Palmer cord tyres, Brooks B100 handle-bar control; £22.

UDES'.—Antoine, 4h.p., Mabon clutch, long bars, handle-bar control, very good tyres, 26in wheels, sition; £15.

UDES'.—N.S.U., 4h.p., twin-cyl., low built, Bosch magneto, 1908 model; £27.

UDES'.—N.S.U., 3½h.p., magneto, girder forks, 26in. wheels, good running order; £17.

UDES' Motor Mart, 136, Great Portland St., London, W. Tel.: 552 Mayfair. Telegrams, "Abdi-London, also at Halifax.

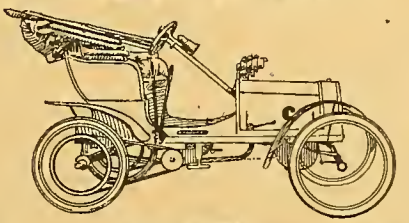
The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 700. Telegrams: "Perfection."

Brand New 1909



5½ h.p. **O.T.A.V. VOITURETTES,** complete with hood, lamps, tools, and spares £80. Exchanges considered.

1909 REXES. 1909

Brand new and fully guaranteed.

1909 3½ h.p. Tourist REX	£35	0
1909 3½ h.p. REX DE LUXE, two-speed	£45	0
1909 5 h.p. REX DE LUXE, two-speed	£48	0

1910 REXES. From £42. Liberal Exchanges. Deliveries from Stock.

SID CAR MACHINES.

1909 5 h.p. TWIN REX, nearly new	£32	10
1908 Twin Tourist REX, magneto	£26	10
1908-9 four-cyl. F.N., fine condition	£25	10
1908 Two-speed REX DE LUXE, NEW	£40	0
1908 REX DE LUXE, magneto, extra good	£29	10
1907 Twin magneto REX, spring forks	£20	0
1907 5½ h.p. Twin REX, spring forks	£16	16
6 h.p. Twin N.S.U., magneto, spring forks	£24	10
7-8 h.p. Twin MINERVA and N.S.U. Sidecar	£29	0
Twin WERNER Lightweight, spring forks	£12	10
5½ h.p. REX DE LUXE, Roc clutch, magneto	£24	10
6 h.p. Twin ANTOINE, extra good, R.O.M.	£18	10
Twin CLEMENT spring forks spray	£9	14

"POPULARS."

1910 3½ h.p. Magneto TRIUMPH, 500 miles	£42	15
1909 TRIUMPH, magneto ignition	£34	0
1909 3½ h.p. PHELON & MOORE	£39	10
1909 3½ h.p. Magneto REX, nearly new	£32	10
1909½ 3½ h.p. REX Speed King, as new	£35	0
1909 3½ h.p. two-speed HUMBER	£32	10
1908 3½ h.p. Magneto REX, special machine	£24	10
1908 3½ h.p. 2-speed REX DE LUXE	£30	0
4 h.p. ROC, magneto, clutch, good, h.b. control	£24	0
1908 3½ h.p. Mag. N.S.U., spring forks, like new	£21	0
4 h.p. ANTOINE, high tension magneto	£18	18
3 h.p. Magneto SIMMS, 2¼in. Palmers	£16	10
3 h.p. SINGER, V belt, h.t. magneto	£16	10
1907 3½ h.p. QUADRANT, spring forks	£17	10

SPECIAL BARGAINS.

3 h.p. HUMBER, spray, free engine	£10	10
3 h.p. BRADBURY, long and low	£10	0
1906 3½ h.p. REX, spring forks, M.O.V.	£15	10
4 h.p. STEVENS, h.b. control, band brake	£13	10
3 h.p. CLYDE, high tension magneto ignition, spring forks	£14	10
2¾ h.p. KERRY, light and low, spray	£9	10
3½ h.p. REX 22 frame, re-enamelled, trembler	£7	10
3 h.p. BEESTON-HUMBER, spray	£9	10
3½ h.p. WERNER, used with passenger	£13	10
2½ h.p. Light ARIEL, low build, 26in. wheels	£8	15
2¾ h.p. LLOYDS, vertical, spray, non-skid	£6	0
2 h.p. F.N. SAROLEA, untested, spray	£4	5
3½ h.p. EXCELSIOR, h.b. control	£6	0

Monster list on application. Cash offers considered.

Five 5½ h.p. TWIN REXES, spring forks, long bars, low frames, aluminium finish, blue lines, 26in. wheels. **£16 10**

Grand sidecar machines. Exchanges or easy payments.

EASY PAYMENTS.

5/- weekly and reasonable deposit secures any of these machines. All tested and ready for the road

2¾ h.p. Bradbury	£10 0	2¾ h.p. Kerry	£9 10
3 h.p. Clyde	£15 0	2½ h.p. Ariel	£9 13
3 h.p. Ariel	£10 0	2¾ h.p. Werner	£8 19
3 h.p. Hmmber	£10 0	3½ h.p. Werner	£13 10
3½ h.p. Rex	£10 10	2¾ h.p. M.M.C.	£9 10
2½ h.p. Lloyd's	£7 10	2 h.p. Humber	£8 10
3½ h.p. Rover	£14 0	3 h.p. Bradbury	£10 10
2¾ h.p. Minerva	£9 10	3½ h.p. Excelsior	£9 10

CARS AND TRICARS.

Any reasonable exchange considered. Room wanted.

10-12 h.p. two-cylinder BRUSH car	£39 10
4½ h.p. BRADBURY w.c. tricar, two-speed	£35 0
5½ h.p. w.c. two-speed REXETTE, like new	£24 10
5½ h.p. Twin REX, fitted Mills-Fulford Forecar	£14 10

MISCELLANEOUS.

New B.&B. carburetter, h.b. control	£1 5 0
New AMAC " "	£0 19 6
New large size LYCETT'S motor saddle	£0 9 6
1910 Spring Forks, fit tall Rex machines; pamphlet on application	39/6
Roc Speed Gear, to fit Triumph	£5 0

MOTOR BICYCLES FOR SALE.

3½h.p. Rex, 1908, magneto, spring forks, low, and powerful; £18.—Angarde, 59, Robsart St., Brixton

KERRY, 2¾h.p., good going order, tyres fair, Whittle belt, F.N. carburetter; £5.—168, High St., Croydon

£6.—2¾h.p. Brown, 2¼in. Palmers, in going order; giving up.—Motor, 42, Elmdale Rd., Palmers Green, N.

2h.p. Lightweight Motor Cycle, equal to new, £12 10s., or terms arranged.—115, Boundary Rd., St. John's Wood.

4½h.p. Twin Minerva, perfect order; £18; part exchange cycle.—Ellis, 112, Canbury Park Rd. Kingston.

4h.p. Clement, magneto, spring forks, h.b. control, 26 by 2½ tyres; 14 guineas.—Pinky House, Clapham, S.W.

LIGHTWEIGHT F.N., 1¾h.p., magneto, perfect, every thing as new; any trial; £17. — Heather Oaks, Sanderstead.

WHITTLES.—Roc, 1909, 4h.p., M.O.V., magneto clutch, two speeds, H.B. control, spring forks nearly new; £30.

WHITTLES.—Minerva, 4½h.p., twin, M.O.V., spring forks, runs well; extra cheap, £16 16s.

WHITTLES.—Rex de Luxe, 5-6h.p., twin, magneto, Roc clutch, as new; sacrifice £26.

WHITTLES.—F.N. 1909 1¾h.p. Lightweight, spring forks, magneto, nearly new; sacrifice £19 19s.

WHITTLES.—F.N., 4½h.p., 4-cyl., magneto, spring forks, new R.O.M. tyre; bargain, £25.

WHITTLES.—Minerva, 2¾h.p., M.O.V., Chater-Lea good order; £6 15s.; exchanges entertained.—Whittles Motor Exchange, Earlsfield. 'Phone, 711 Post Wimbledon.

N.S.U., 2¾h.p., splendid machine, 2¼ Peter-Unions; any examination here; bargain, £12 10s.—26, Khartoum Rd., Ilford, E.

TRIUMPH, 1909, new July, run 1,400 miles, perfect nearest £35 10s. cash.—Parsonage, Dale Grove, North Finchley.

2¾h.p. Kerry, long handle-bars, Brooks 150 saddle, perfect condition; bargain, £15.—15, Allenby Rd., Forest Hill.

3h.p. Clyde, long bars, footboards, enamelled grey, tyres and plating very good; £8 10s.—Moore, cycle repairer, Surbiton.

1910 Triumphs and 1910 Humbers in stock; your present machine and cash for one.—128, High Rd., Tottenham.

1909 Triumph, new condition, and lot of spares; £40 no offers.—Box L1,323, *The Motor Cycle* Offices, 20, Tudor St., E.C.

3½h.p. Quadrant, perfect condition, spring forks Whittle belt, tyres good; £15.—Franklin, 28, Normanton Rd., Croydon.

3½h.p. Viudec Special, Bosch magneto, brand new Dunlops, new belt, spares, in first-class condition; £20 —A. Staples, Woking.

1909 Triumph, like new, very little used, winner Dashwood hill-climb; £37.—53, Kingsley Av. West Ealing, London.

3½h.p. N.S.U., spring forks, good tyres, accumulator ignition, splendid order; £12; trial.—Jermy Frimley Green, Surrey.

3½h.p. Triumph, very carefully used, grand order and condition; £50; seen appointment only.—C.S. 19, Cheriton Sq., Balham.

1910 Twin Rex de Luxe, Palmer cord, Amac, new grand chance, spares; £57.—48, Londesborough Rd., Stoke Newington, N.

5½h.p. Twin N.S.U., magneto, free engine, splendid condition, new tyres; sacrifice £17.—"Oreya" Minster Rd., Bromley, Kent.

TRIUMPH, 1909, complete with lamp, horn, and spares; 38 guineas, or nearest offer.—Spring, Latchmere Rd., Kingston, Surrey.

1908 Triumph, Clincher rubber studded, new, perfection; any trial; accessories; £26 10s.—Letters 28, Siddons Rd., Tottenham.

TRIUMPH, 1910, never on road; unable accept delivery; sacrifice £44; first cheque secures.—Motor 12, High St., Tunbridge Wells.

3½h.p. Auto, good running order, spring forks, Palmers, Longuemare; £10 10s.; photo.—6, Spencer Terrace, Boundary Rd., Woking.

TRIUMPH, 1909, splendid condition, Clincher tyres, Autoclipse lamp, complete with all accessories; £36 —Pine, Victoria Rd., Guildford.

TRIUMPH, 3½h.p., magneto, handle-bar control, new tubes, rubber belt, fine condition; lowest, £25. — 29, Queen's Av., Muswell Hill.

1909 5h.p. Special Twin Rex, enamelled grey, condition as new; only wants seeing; bargain, with spares, £29 10s.—16, Haverstock Hill.

F.N., 4-cyl., 4½h.p., 1908, carefully used, splendid condition throughout, Palmer cords; £26, great bargain.—41, Ashford Rd., Cricklewood.

MOTOR BICYCLES FOR SALE.

3½h.p. Fafnir. M.O.V., Longuemare carburetter, Clincher tyres, footrests, good condition; £11.—6, Islip St., Kentish Town, N.W.

3½h.p. Quadrant, 4h.p. twin Werner, spring forks, good tyres; wanted, a good tricar, wheel steering.—E.T., 65, Wickham St., Rochester, Kent.

3½h.p. Fafnir, Chater-Lea frame, spring forks, handle-bar control, guaranteed excellent condition; £15.—Thomson, Scuttington Manor, Sittingbourne.

2¾h.p. Excelsior-Minerva, Watawata, Longuemare, Clinchers, B.wden control excellent condition; £9 10s.; appointment.—1, Townley Rd., Dulwich.

IF You Want Bargains in second-hand motor cycles you can get them at Wauch pe's, 9, Shoe Lane, Fleet St., London (just off Ludgate Circus).

1910 Triumph, Premier, F.N., and Moto-Reve; instant delivery; best prices in exchange; send particulars.—Batchelor and Co., Clarence St., Kingston.

1908 (December) 3½h.p. Tourist Rex, B.B. engine, B. and B. h.b. control, fast, and splendid hill-climber; £21.—L. Selway, Turner's Hill, Cheshunt.

TRIUMPH, 3½h.p., magneto, etc., 1907 machine, but scarcely been used, all spares and accessories; £25.—Seen at the Garage, opposite Station, South Ealing.

3½h.p. Vindec, magneto, spring forks, perfect, £14; 1¾h.p. Wolf lightweight, only run 100 miles, £17.—Mitchell, 14, High St., Rusthall, near Tunbridge Wells.

3½h.p. Rex, spring forks, Shamrock-Gloria belt, Continental tyres, excellent condition, and perfect running order; £13.—Herbert, High St., Ongar, Essex.

3h.p. Auto, fine smart machine, grey finish, spring forks, Price's stand, lamp, and spares; £13 10s.; seen any evening.—51, Lansdowne Rd., South Woodford.

2¾h.p De Dion, fitted with Ruthardt magneto and engine plates, adjustable pulley, in splendid order; £8.—Frank Whitaker, Green St. Green, Orpington.

5-6h.p. Twin Sarolea Motor Cycle, free engine, Davidson tanks, Peter-Union tyres, suitable for sidecar, in splendid condition; £15. — Sear, Chingford Rd., South Chingford.

3h.p. W. and P., Chater No. 6 frame, spring footboards, accumulator, ¾ leather belt, in splendid condition; £12; exchange part.—Page, 74, East Hill, Dartford, Kent.

MOTOSACOCHE, splendid running order, tyres as new, belt new, spare valves and tyre; £17 10s.; owner bought car.—H., 28, Springfield Rd., Kingston-on-Thames.

3½h.p. 1909 Triumph, Cowey speedometer, Triumph lamp, and horn; 33 guineas, with complete set of tools.—Seen at Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

1907 Twin Rex, in splendid condition, magneto, spring forks, cantilever seat, 2¼ tyres; £15; letters, or after 3.—A.E.B., 119, High St., Camden Town, N.W.

CHASE'S 5h.p. Racing Decart engine and carburetter, in new Bat spring frame and forks, new tyres, etc., very fast and flexible; £17.—Parkhurst, Holwood Rd., Bromley, Kent.

7-9h.p. Peugeot Motor Cycle, Chater-Lea parts, low built, powerful, Brooks spring seat, Whittle belt; price, lowest, £15.—At Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

MINERVA, 3½h.p., spring forks, B.B. H.B. controlled carburetter, splendid condition, good hill-climber, very reliable, spares, etc.; £15.—H. Mills, 160, Manor Park Rd., N.W.

TRIUMPH, 1909, spring seat-pillar, lamp, horn, all spares, Riches tubes, little used, guaranteed perfect condition and running order; £38.—Lieut. Leslie, R.N. College, Greenwich.

MINERVA, 2¾h.p., long, low, powerful, Continentals, Brooks, Riches tube, spring saddle, perfect condition, recently overhauled; £8.—Sorrell, 6, James St., Rochester.

N.S.U., latest, 1910 model, 6h.p., two speeds, spring forks, Palmer cord tyres and tubes, not done 100 miles; £60, or take lower power part payment.—Letters, J.S., 73, St. Mary Axe, E.C.

VINDEC, 5h.p., magneto, Mabon clutch, handle-bar control, rubber covered footboards, in perfect condition; owner buying higher power same make; a bargain, £25.—North London Garage, Corsica St., N.

N.S.U. 5-6h.p. Twin, new last August, Bosch magneto, 26 by 2½ tyres, only been ridden four times, unsoiled, all accessories and spares; a genuine bargain, £27.—1, Walsingham Gardens, South Ealing, W.

4½h.p. Minerva, B. and B., Palmer cords, spring forks, winner Jarrott and M.C.C. Challenge Cups, perfect condition; £26; R.O.M. synchronised contact, 10s., new.—66, London Rd., Twickenham.

TRIUMPH, 3½h.p., 1907, magneto, two-speed, free engine and sidecar, new steel studded Michelins and tubes throughout, in grand order, H.B. control, powerful lamp, etc.; £30.—J. W. Lewsey, 80, Durants Rd., Ponders End.

£9 9s. — Lightweight, 2¼h.p., in excellent running order, can be ridden away, spare tube, cover, tools, lamp carrier-stand, horn, etc.; bargain; given away.—Salesman, 168, Wandsworth Rd., S.W., 5 minutes from Vauxhall Station.

PREMIER MOTORS

3¾ h.p. Twins, 50 gns.

We stock these lovely machines and can give fine quotations.

SIDECAR MACHINES.

1908 6 h.p. ROC, magneto and 2 speeds..	£30	0
1908 3½ h.p. TRIUMPH-ROC, 2-speed gear	£35	0
1908 Twin REX, magneto, very low	£25	0
1909 5 h.p. Twin REX, fine machine	£32	0
1909 ditto, quite new, unused	£36	0
1910 6 h.p. CLYNO, brand new. Offers wanted.		
7-8 h.p. Twin MINERVA, M.O.V., fine machine	£25	0
6 h.p. Twin REX, Roc 2 speeds	£22	0
1909½ Twin REX Racer, lovely goer	£35	0
1909½ 3½ h.p. REX Racer, soiled only	£32	10
6 h.p. Twin REX, magneto, h.b. conttol	£19	10
6 h.p. Twin REX, spring forks, 26" wheels	£16	10
3½ h.p. VINDEC, magneto, Nala 2 speeds..	£19	0

Any of the above fitted with one of our new Sidecars for **£4 17s. 6d.** extra.

SOLO MOUNTS.

1910 3½ h.p. REX, slightly soiled. Offers wanted.	
1910 3¾ h.p. PREMIER, twin-cylinder	50 Gns.
1909 3½ h.p. REX, R.O.M. tyres	£30 0
1908 3½ h.p. REX, almost like new	£22 0
1908 3¾ h.p. GRITZNER, mag., free engine	£18 0
1908 REX Lightweight, fine condition	£17 0
1907 3½ h.p. REX, lovely goer, very smart	£15 15
3½ h.p. REX, M.O.V. spray	£10 10
3½ h.p. 1906 REX, M.O.V., spring forks ..	£14 0
3½ h.p. Low REX, M.O.V., h.b. control ..	£11 0
3½ h.p. REX, Bosch magneto, fine goer....	£12 0

LIGHTWEIGHTS.

1908 N.S.U. Lightweight, Bosch magneto ..	£17 0
1909 MOTOSACOCHE, soiled only	£24 0
1908 REX Featherweight, magneto	£18 0

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Clarendon .. £9 | 3½ h.p. Humber .. £9
3½ h.p. Rex ..... £9 | 3½ h.p. Rex, M.O.V. £11
3½ Centaur, M.O.V. £9 | 4 h.p. King £9

FARRAR'S HALIFAX SIDE-CARS

£4 17s. 6d. complete with best tyres. Guaranteed 12 months. An ideal winter attachment, quite rigid. Good, stylish, and comfortable. No sideslip. Beautifully sprung on double C spring. Approval anywhere. Send for descriptive circular. Don't buy until you have seen ours.

IMPORTANT.—For a few days, we will accept your old sidecar or trailer in part payment.

SPECIAL PURCHASE.

5 only. Brand New 1909.

5½ h.p. O.T.A.V. VOITURETTES, complete with hood, lamps, tools, and spares, £60 each.
Magneto ignition £5 extra.

ACCESSORIES, Etc. Get my List. POUNDS SAVED.

	s.	d.
6 h.p. water-cooled engine	99	0
2¾ h.p. standard engine	35	0
1¾ h.p. Minerva engine	25	0
2½ h.p. Monarch engine	35	0
28 x 2 or 2¼ Dunlop Wired Covers.....	11	6
Lycett's B Tool Bags, shop soiled, each	4	6
Smaller Motor Cycle Bags, shop soiled, each..	2	6
"Hella" Gas Lamps with separate generator	14	6
"Camel" V Belting, ¾in. or 1in., per foot....	1	3
Latest pattern Plated Handle-bars, drop ends	5	6
Enamelled Mudguards, with stays, etc., pair	2	11
Three-note "Fanfare" Horns, very penetrating	7	6
Clincher Rubber-studded Covers, 26 x 2¼in., each, 29/-.		
Clincher Tubes, all sizes, with valves, 4/11 each.		
New Loop Frames for vertical engine, 30/- each.		
1910 Brown & Barlow, ditto, 28/- each.		
Large Motor Cycle Saddles, to clear, 5/- each.		
Forecar Attachment, 26in. wheels, £4.		
Premier High-tension Magneto, new, 59/6.		
Bosch Magneto, 1910 pattern, £3 15.		

High-class Machines Wanted. Cash Waiting.

E. FARRAR,
Albion Works, Square Rd., HALIFAX.
Telephone 919.

MOTOR BICYCLES FOR SALE

7-9h.p. N.L.G.-Peugeot, just plated and enamelled, done 1,500 miles, 2½ Continental Model de Co guaranteed in first-class condition, fast machine; examination allowed; £28. — Scott, 45, Baalbec Tighbury.

THE Eastern Garage Company, 418, Romford Forest Gate, are agents for all leading make motor cycles, 1910 Triumphs, Rex, P. and M., Dot Kerry-Abingdons in stock. Second-hand machines t in part payment. The following selection are exce value:

1909 Rex Tourist, 3½h.p., new, J.A.P. lubric latest improvements; £35.—Below.

1909 Tourist Rexes, 3½h.p., with all accessories; each.—Below.

1908 Rex, 3½h.p., T.T. engine, magneto, spring number studded tyre, all accessories, and t £20.—Below.

1906 Rex, 3½h.p., spring forks, in guaranteed c tion; £12.—Below.

1909 Triumphs, with first-class accessories; £35 —Below.

1908 Triumph, Brooks padded saddle, guara perfect; £29.—Below.

1909 J.A.P., 4h.p., M.O.V., J.A.P. adjustable ley, Bosch magneto, Chater frame and s forks, Palmer tyres, H.B. control not done 300 including accessories; £32.—Below.

1908 J.A.P., 4h.p., Bosch magneto, Chater f Druid spring forks, footboards, studded Autoclipse lamp, etc.; £26.—Below.

1909 F.N., 4-cyl., F.N. footrests, H.B. co R.O.M. combination tyre, with nearly new car; £35.—Below.

1909 Peugeot, 5h.p., Chater, adjustable p R.O.M. and Palmer cord covers, Dav gauges and fillers, F.R.S. lamp; £20.—Below.

1909 Minerva, 3½h.p., entire handle-bar control, neto, spring forks, Amac carburetter, grey condition perfect; £26.—Below.

1906 Minerva, 2¾h.p., Bowden H.B. control, p order, guaranteed; £12.—Below.

1907 De Dion, 2¾h.p., spring forks, rubber st tyre, light low machine, splendid cond spares; £12.—Below.

IN addition to the above the Eastern Garage Co a number of machines at prices ranging fro Please favour us with a visit at 418, Romford Forest Gate, or telephone, Stratford 10. Tele Egaraco, London.

2½h.p. Century Lightweight, perfect, £5; 3½h.p nir, new tyres, £14; 3½h.p. M.M.C.-Bat, 4¾h.p. Stevens, Osborne four-speed complete, with built sidecar, £17.—Smith, 16, Triangle, Bishop's Fulham.

4-CYL. F.N., perfect condition, footboards, fo celerator, automatic carburetter, adjustable je proved induction pipe, and silencer, new Dunlop Englebert front, lamp, tools, spares, etc.; £22.—J 12, Grotto Rd., Twickenham.

CLEARANCE.—2¾h.p. Kerry, £8 10s.; 6h.p. twi toine, £17 10s.; 2¾h.p. Brown, £8 10s.; Quadrant, £4 10s.; 2¾h.p. J.A.P., £8 10s.; 2¾h.p. mix, magneto, two speeds, £14 10s.; exchanges; call, or write; trials.—128, High Rd., Tottenham. 1982, Tottenham.

3½h.p. Minerva, new six months ago, not ridde miles, absolutely perfect, two accumulators by new rigid device, no terminals to fix), Mabon and pulley, Continentals, carrier, stand, and all s £25 cash, a real bargain; any evening by appointm S. Blenkarn, 58, Cromwell Rd., Beckenham.

8h.p. Minerva, £25; 4½h.p. Minerva, £20; fore fit either machine, 90s.; 2¾h.p. Minerva, £1 h.p. magneto F.N. lightweight, £20; Motosacoche, Rover forecar, £18; 3h.p. Quadrant, vertical e spring forks, low frame, £12; 8h.p. Buchet pacing £35; sidecar, £4.—Seen at, or further particulars The Cripps Cycle and Motor Co., 24-28, Woodfor Forest Gate, London, E. Tel.: 75 Stratford.

COMPLETE Outfit.—3½h.p. Minerva, nearly new tinental, Palmer cord, unpunctured, Lycett and carrier, Lyso belt, Price's stand, G. and A. matic h.b.c., voltmeter, Autoclipse lamp and gen spare belt, plug, valves, chain, pulley, etc., all ne numerous spare parts, etc.; expert examination in receipts shown; trial; purchaser need buy nothing £18 10s.—S. Perkins, 161, High Holborn, W.C.

SECTION IX.

Somerset, Devon, Dorset, and Cornwall

TRIUMPH and Motosacoche, 1910 models in cash, exchange, deferred payments.—Dar Weymouth.

4h.p. 2-cyl. Motor Bicycle, Kerry engine, thor first-class condition, cheap for cash, or s exchange.—Geo. Pollard and Co., Ltd., Taunton.

QUADRANT, 3½h.p., 1910 model, equal new, g teed; £38; approval; deposit; or exchange Douglas.—P. Thorne, Brunswick, Tiverton.

TWIN Vindec, Truffault, spring forks, magneto speed gear, free engine, 2¾in. tyres, stand carrier, tyres, tubes, and engine perfect, with rigid ford sidecar, 2½ tyre; £37, or offer.—Dan Guy mouth.

In answering these advertisements it is desirable to mention "The Motor Cycle."

THE MOTOR CYCLE SUPPLEMENT

THE TOURIST TROPHY RACE.

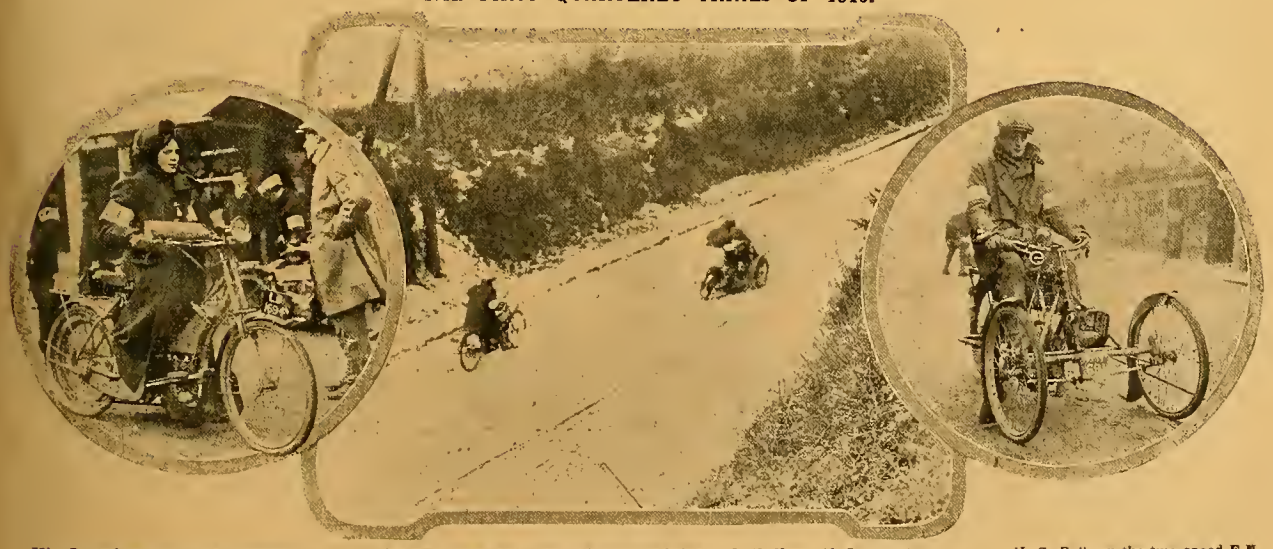
THE following is a list of the entries received to date for the International Tourist Trophy Race, to be held on Thursday, May 26th:

H. A. Collier, winner 1909 (1 Matchless).
W. H. Wells (2 Indians).
Hendee Manufacturing Co. (3 Indians).
W. O. Bentley (1 Indian).
Triumph Cycle Co. (3 Triumphs).
C. B. Franklin (1 machine).
Noel E. Drury (1 machine).
H. Collier and Sons (2 Matchless).
Quadrant Motor Co. (1 Quadrant).
Rex Motor Manufacturing Co. (3 Rex).
Scott Engineering Co. (1 two-stroke Scott).
W. H. Bashall (1 Bat-J.A.P.)
J. T. Bashall (1 machine).
H. H. Bowen (1 Indian).
Norton Manufacturing Co. (1 Norton).
S. A. M. Whitham (1 Triumph).

THE SAFETY OF THE HIGH ROADS.

A CASE of considerable importance to owners of motor cycles has been settled by Judge Lumley Smith, K.C., and a jury. The jury in question decided that if any person takes up a high road it is his duty to leave the whole of it so that it is safe for all forms of road traffic. In the case referred to, Messrs. Fremlin Bros., brewers, sought to recover £16 14s. 11d. from the Rayleigh Gas Co. for damage done to a motor lorry on Weir Hill, Rayleigh, in September last. Messrs. Fremlin Bros. consulted the Legal Department of the Motor Union, and on their advice Mr. Moresby White was briefed. The plaintiffs' case was that the wheel of one of their motor lorries, in passing over a portion of the road, sank up to the axle into a newly-filled trench, cutting the twin tyres to pieces. The defendants maintained that the driver of the lorry should have avoided that section of the road, as it was obvious that the trench had but recently been filled up. The company had been laying gas mains, and the road was hand-rammed. Judge Lumley Smith, however, stated that it was the duty of anyone who disturbed the high road, afterwards to leave the whole of it in safe condition for all ordinary traffic; or if, as the defendants contended, wet weather prevented the newly-laid portion from hardening, it ought to be kept safe, and steps should be taken to warn traffic of its unsafe condition. There was nothing to show that the plaintiffs' lorry was of extraordinary weight. This decision tends to prove that county councils are liable for any damage caused by leaving unrolled stones on the road at night without a warning light.

THE FIRST QUARTERLY TRIALS OF 1910.



Miss Berend starting from Uxbridge on her Moto-Reve lightweight.

Climbing Dashwood under adverse conditions: G. N. Higgs (A.C. tricar) and G. H. Lake (P. and M.)

H. G. Bell, on the two-speed F.N. tricycle. This is the first tricycle to complete the trial.

Motor Cycles in the Army.

The above is the title of a lecture which Capt. Battine has kindly undertaken to deliver before the A.C.U. at an early date, probably this month.

Motorists' Sympathy.

The Motor Union has voted the sum of 500 francs towards the relief of the distress caused by the recent disastrous floods in Paris.

New and Old Pattern Machine in the Trial.

There was only one 1910 Rex in the Quarterly Trial. This was ridden by F. A. Applebee, jun., who accomplished a non-stop. The machine ridden by F. W. Applebee, sen., was a 1908 pattern.

The New York Show.

The undermentioned figures, which refer to the motor cycles exhibited at the recent New York Show, show the tendencies and developments in American motor cycle design better than pages of description. The census was compiled by the *Bicycling World*.

Total motor cycle exhibitors ...			19
Bicycles	74		
Sidecars	2		
Delivery tricycles	2		
Tandem	1		
Total machines			79
One cylinder	54		
Two cylinder	23		
Four cylinder	2		
Total			79
Belt drive, V	33		
Belt drive, flat	14		
		47	
Chain drive		25	
Shaft drive		7	
Total			79
Battery ignition		28	
Magneto ignition		51	
Total			79
Automatic valves		42	
Mechanical valves		37	
Total			79
26in. wheels		30	
28in. wheels		49	
Total			79

Climbing Hills in "less than no time."

A N.S.W. motor cycle club recently held a hill-climbing competition on a rise one mile in length on a handicap basis, but a rider of a Motosacoche was too generously treated by the handicappers, for it was found that by dint of vigorous pedalling he had actually reached the summit before his competitor had started! To have won, the Motosacoche rider's rival would have had to climb the hill "in less than no time," to use a colloquialism.

Annual Dinner of the R.A.C. and Associate Clubs.

The annual dinner of the R.A.C. and Associated Clubs took place on Thursday last at the Connaught Rooms, Great Queen Street, W.C. The dinner is of interest to motor cyclists chiefly on account of the Auto Cycle Union being one of the most important bodies affiliated to the R.A.C. Moreover, Mr. Robert Todd, the chairman of the A.C.U.; Mr. F. Straight, the secretary; and other prominent members were present. The Hon. Arthur Stanley, M.P., was chairman in lieu of Prince Francis of Teck, K.C.V.O., D.S.O., president of the A.C.U., who was unavoidably absent, but his brother, Prince Alexander of Teck, K.C.V.O., D.S.O., sat on the chairman's right. The royal toasts were proposed by the Chairman, and that of "Automobilism" by Sir Henry Norman. Lord Montagu, in his reply, mentioned that in future it was necessary to devote more attention to the roads, and to endeavour to improve them as regards dustlessness, surface, and to straighten out their curves. Mr. A. Armitage, J.P., in proposing the "Houses of Parliament," said he hoped that the Act, which was after all not such a bad Act, would be interpreted in a sensible manner. So often the treatment of motorists was different in the Petty Sessional from what it was in the police courts. The Earl of Clarendon and Lord Claud Hamilton replied to the toast, and the latter expressed it as his opinion that it was most inadvisable to impose a tax upon a thriving industry, and a tax such as the petrol tax was prejudicial to home productions. The toast of "The Chairman" was proposed by Sir Edward Henry, Commissioner of Police for the Metropolis, and was replied to by the Hon. Arthur Stanley and Prince Alexander of Teck.

News from the Clubs

The doings of thirty-four clubs, representing many thousand motor cyclists, are recorded in this issue.

Bolton and District M.C.

"Magneto Ignition" was the subject of a lantern lecture delivered by Mr. E. Bennett on Wednesday evening last to a company who assembled at the annual dinner and social of the above club. The attendance numbered sixty.

Pneumatic Helmets.

The value of a racing casque or pneumatic helmet has been brought before our readers on many occasions, and there are several riders who owe their lives to their forethought in providing themselves with what is undoubtedly the best cyclist's life protector. On the subject of the use of a helmet is insisted on, and it would be in the interests of the pastime if the A.C.U. would embody in the regulations that a casque should always be worn.

RACING ON MOTO
Motor cycles are used in pra
illustration shows the start of a mo
Peugeot, and Griffon machines wer

ə Tourist Trophy Race.

ɔn to the list of entries pub- he previous page, the follow- been received: J. Alexander and F. A. McNab (1 Trump).

ɪcal Taxation Licences.

aders are now writing to ask cycles used for business pur- are exempt from these taxes. ɪjority of cases we have to the negative, as the authori- hold that only a vehicle con- ely for the transport of goods ndise, and incapable of being pleasure purposes, can be

on an Australian Record.

tley, of Sydney, has made an l attempt to lower his own n Bourke to Sydney, about d miles. After covering the les, to Trangie, in 8h. 25m., a bad fall. On recovering, he and reached Dubbo (238 miles) hedule, 11h.), but retired at 0 miles) through another fall.

MADAGASCAR.
he are roads at all. The above Ma gascar, in which Motosacoche,
(From *La Vie Automobile*.)

The T.T. Race Sanctioned.

Last Tuesday a telegram was received by the A.C.U. granting official permission of the Highway Board of the Isle of Man to hold the International Motor Cycle Tourist Trophy Race on Thursday, May 26th.

Swiss Motor Cyclists' Ideal Mount.

The Swiss Automobile Club is the authority from which we have gathered the following information: "We use lightweight motor bicycles, the weight of which is not over forty kilogrammes, or power more than 2 h.p., such as the Moto-Rêve and Motosacoche, in all weathers, almost like pedal bicycles. These small light machines are extremely strong and lasting, and enable their owners to tour as much as 200 to 300 kilometres a day. The writer accomplished in September last the distance between Geneva and Nîmes, about 400 kilometres, on a 2 h.p. Moto-Rêve, weighing in running order thirty-nine kilogrammes, without the slightest mishap or trouble. The heavy motor cycle has been almost completely given up in Switzerland, as it has been found to be too heavy and unwieldy, apt to skid, dangerous, and costly to maintain."

Affiliation to the Governing Body.

Apparently all is not well in the Nottingham and District Motor Cycle Club's ranks concerning the A.C.U. A proposal was put forward at the recent A.G.M. not to re-affiliate, but it was ultimately decided to continue affiliation for another six months. Nottingham was made one of the A.C.U. local centres at the time the scheme was launched.

The General Meeting of Northern Motor Cycle Clubs.

Arrangements are now being made for the annual meeting of motor cycle clubs at Richmond (Yorkshire) on Good Friday next, and we are asked by the hon. sec. of the 1910 meet, Mr. Geoffrey W. Liddle, of 367, Linthorpe Road, Middlesbrough, to request all Northern club secretaries interested in this meeting to forward their names and addresses to him. Some months ago Mr. Liddle was concerned in an unfortunate accident, which has debarred him from motoring since, and he has therefore got somewhat out of touch with the meeting. Hence his appeal to *The Motor Cycle*.

Quarterly Trials Entries Analysed.

The power of the competing machines ranged from 1½ h.p. to 8 h.p. Forty of the seventy-four machines entered had single-cylinder engines, and the remaining thirty had twin-cylinder engines.

West Essex A.C.

The fifth annual dinner at the Great Eastern Hotel, Liverpool Street, was well attended. The toast list was short, and the speeches bright and brief. The club was founded in 1905, and has enjoyed five years' unchecked progress. During the evening the prizes won in competition were presented by Mrs. Foster Wickens.

The End-to-end Trials.

Additional entries received for the A.C.U. Six Days' End-to-end Trials in July are: W. H., J. T., and H. B. T. Basball (Bat-J.A.P.'s), F. Dover (3½ h.p. Triumph), S. Stacey (3½ h.p. Triumph), and W. H. Wells (2 Indians).

Cambridge University M.C.C.

A general meeting was held at the Blue Boar Hotel on Monday last. It was decided to circularise all members of the club as to the best date for a meeting at Brooklands against Oxford. Also to present a silver cup to the member who made the most attendances at club runs. The silver medal awarded last term for the competition was settled upon, and it was decided to standardise it for all competitions.

Next Saturday the club run is to Bedford.

Hard Luck!

Messrs. E. J. Skinner and J. Trevor, members of the N.S.W. Auto Union, suffered misfortune on a recent Sunday. While out on two valuable motor cycles, they reached Bobbin Head, some miles north of Sydney. Leaving their machines a little off the road, they scrambled down the cliff to have a swim in the briny. Returning an hour later, to their dismay it was found that a bush fire had swept part of the surrounding bush, and every inflammable part of their machines was reduced to ashes. Some picnickers who were noticed near by were most likely responsible for starting the fire.

(SEE ALSO PAGE 99.)

CLUB NEWS.

(SEE ALSO PAGE 99.)

Bristol Bicycle and M.C.

Members of the motor section are asked to attend a meeting at headquarters to-morrow (Tuesday) at 8 p.m.

Essex M.C.

Mr. A. E. Lowe's paper on "The History of the Internal Combustion Engine" has been postponed until Thursday, the 17th inst.

Sheffield and Hallamshire M.C.C.

Next Thursday is set aside for Messrs. D. Bradbury's and J. Haslam's lecture night on "Transmission" and "Magnetos." Commence at 8 p.m.

Streatham and District M.C.C.

Fixtures for 1910 are as follows: April 16th, hill-climb; May 7th, reliability trial; June 11th, petrol consumption test; June 18th, gymkhana and garden party; September 17th, hill-climb.

Hertfordshire County A.C. (Motor Cycle Section).

The Triumph Cycle Co., Ltd., Coventry, have very kindly presented to the Hertfordshire County M.C.C. a handsome challenge cup for open competition during the present year.

Leeds M.C.C.

The annual general meeting of the above club was held last Monday evening, and was well attended. The following is the list of officials elected for 1910: President, Rowland Winn; vice-presidents, H. A. Hughes, H. Archer, J. R. Kelly, J. Whittle, O. Brooks, A. I. Greenwood, W. D. Brown, E. S. Myers, H. Wheater, and F. Scriven; committee, J. Scriven, P. H. Cockroft, F. W. Greenwood, G. Horner, F. C. Bagshaw, J. W. Fawcett, H. Murphy, H. D. Shaw, W. A. Andrews, and F. Mackay; press secretary, F. C. Bagshaw, 4, Ash Grove, Headingley, Leeds; trials hon. secretaries, F. O. and F. K. Langton, Call Lane, Leeds; hon. treasurer, W. Grinstead, Victoria Arcade, Leeds; hon. secretary, A. Matthews, Triumph Depot, King Edward Street, Leeds; hon. auditor, C. P. Wilson; hon. solicitor, H. Broadbent.

North-west London M.C.C.

The whist drive on Wednesday, most ably conducted by Mr. Williams, was splendidly supported by members and their friends, seventy of whom attended. Mr. Bate, the new vice-captain, will present a prize for the best attendance at social meets held during the riding season.

Will members who intend to take part in the billiard handicap communicate with Mr. T. G. Blundell at once?

Purley and District M.C.C.

The annual general meeting will be held at Wilson's Café, the tram terminus, Purley, on the 16th inst., at 7.30 p.m.

Batley and District M.C.C.

A good muster of local riders attended a meeting at the Central Café, Commercial Street, Batley, when it was decided to form a club to be known as above. The subscription was fixed at 7s. 6d., no entrance fee to be charged. Mr. H. H. Mann was elected hon. sec.

Cardiff M.C.

The sixth annual meeting was held at the Park Hotel, Mr. H. Haddon (chairman of committee) presiding. The annual report and statement of accounts for the year ended December 31st were adopted.

The secretary's report for the year 1909 states: "The club has again had a most successful year. There are no liabilities, and the funds are on the credit side. The membership has increased to over 100."

FUTURE EVENTS.

Feb. 18-26—Manchester Motor Cycle Show, City Exhibition Hall, Deansgate
Mar. 12—M.C.C. Opening Run.
" 16—(Wed.) British Motor Cycle Racing Club Meeting at Brooklands
" 25—General Meeting of Northern Motor Cycle Clubs at Richmond, Yorks.
" 25—M.C.C. Easter Tour. Jarrott Cup Competition.
" 28—Brooklands A.R.C. Easter Meeting.
" 30 to April 2—Exhibition of Motor Cycles, at Leicester, Association Hall.
Apl. 13—(Wed.) B.M.C.R.C. Meeting at Brooklands.
" 20—A.C.U. Second Quarterly Trial.
" 27-28—Brooklands A.R.C. Meetings.
" 30—M.C.C. Members' Hill-climb.
May 4—B.M.C.R.C. Meeting at Brooklands.
" 13, 14, and 16 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.
" 26 (Thursday)—International Motor Cycle T.T. Race in the Isle of Man
" 28—A.C.U. Open Hill-climb.

Scarborough and District M.C.

On the 27th ult. Mr. H. Frain read a paper on "Clu Competitions." There was a good audience, and the pap was well received. Previous to the reading, a series slides, illustrating the A.C.U. Sutton Bank hill-climb, t Tourist Trophy Race, and the M.C.C. run to Land's En were shown.

Keighley and District A.C.C.

The first general meeting of this recently formed clu will be held in the Victoria Hotel, Cavendish Street, Tuesday, February 15th, at 7.30 p.m. The business wi be to enrol members, elect officers, etc. A smoking conce has been arranged, and all interested in motor cycles a cordially invited to be present.

The British Motor Cycle Racing Club.

In our last issue it was mentioned that the 1910 cor mittee of the above club consisted of Major Lloyd, Messr Straight, Tessier, Hardy, and Pratt. These were t members who were elected to fill the vacancies of those last year's committee who had retired, and in addition the above, Messrs. Ebblewhite, O. L. Summers, A. G. Foste H. H. Collier, and W. H. Wells, are committee members.

Birmingham M.C.C.

The seventh annual dinner was held at headquarters, t Imperial Hotel, on the 29th ult. Son forty to fifty members sat down to excellent repast, which was follow by a musical programme and exhibiti of prestidigitation.

Mr. J. R. Bedford (vice-presiden took the chair, and presented t prizes which had been won durin 1909, comprising the President's (M H. Austin's) silver cup, eleven silv and gold medals, and four prizes ea value £1, together with several oth smaller prizes.

A somewhat lengthy toast list w gone through, and in responding the toast of "The Club" Mr. Vernon C. Brook, the hon. secretar mentioned that the membership h increased some twenty per cent. durin the last twelve months, and there w now a membership of close on hundred.

Mr. H. R. Lane, hon. secretary the Sutton Coldfield A.C., in proposi the toast, mentioned the good feelin that existed between the clubs in t Midlands, and suggested that inter-cl competitions should be arranged in the future.

Mr. Brook pointed out that the Birmingham club h already arranged a competition with the Oxford club on t same lines as last year, and could see no reason why a simil competition should not be arranged with Mr. Lane's club.

Mr. J. Hubbard, responding to the toast of "The Visitors which had been ably proposed by Mr. Duke (captain), ga some reminiscences of his early experiences with motor cycl

Proposed Newport and District (Mon.) Motor Cycle Club.

The first meeting will be held at the Queen's Hotel Saturday next at 7 p.m., when all motor cyclists in t locality are requested to make a special effort to attend.

Coventry and Warwickshire M.C.

The annual dinner will be held at St. Mary's Hall, Co entry, on Friday next at 6.30 p.m. Colonel Wyley, V.I will preside, and the vice-chairmen will be Messrs. V. Holroyd and John V. Pugh, J.P. Invitations have be issued to the Mayor of Coventry and to Mr. Kenneth Foste the successful parliamentary candidate. Tickets are 6s. eac During the evening the prizes won in 1909 will be present by the chairman.

THE MOTOR CYCLE

Vol. 8. No. 360. Feb. 14th, 1910.

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FOUR PAGE SUPPLEMENT.

A.C.U. Notes. Club News.

Subscription Rates: Home, 6s. 6d.; Canada, 8s. 8d. Foreign, 10s. 10d. per annum.

Agents for Australasia: Gordon and Gotch, London Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston. Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency Ltd.

ADDRESS—20. TUDOR STREET, LONDON, E.C.

Variably Geared Lightweights.

A CORRESPONDENT this week is amazed at what he calls the surprising performances of an "air-cooled teacup motor" fitted to a machine owned by a motor cyclist in his district, who, to use his own words, "calmly drifts up local gradients that stop dead four-fifths of the local heavyweights and 3½ h.p.'s." This marvellous little hill-climber is, it appears, provided with a two-speed gear, which enables it to ascend stiff hills at a fair speed without recourse to pedal assistance. Our correspondent asks, "Are motor cycle manufacturers retrogressive, and shall we eventually come to traction engines?" This is, of course, a little mild sarcasm at the expense of the heavier types of single-geared machine, which are very much in the majority, a comparatively few machines being fitted with change speed gear. However, variable gears of all kinds are slowly but surely increasing in popularity, and as soon as there is a gear which can be fitted to all and sundry existing machines without structural alterations or materially increasing weight and price, then they will be universal, and no motor cycle will be considered complete without one. Although there are several patterns of variable gears on the market suitable for belt, chain, and even gear transmission, most of them have been designed to suit standard models, *i.e.*, machines of 3½ h.p. to 4 h.p., weighing about 160-170 lbs., but very few have been made suitable for lightweights. If anything, the lightweight motor bicycle requires a variable gear more than any other type, and it is also particularly suitable for a change speed attachment, because the low power of the engine permits of a very light compact gear being designed which would enable any reasonably laden lightweight to climb any main road hill with a single figure gradient without pedal assistance.

Nothing would increase the popularity of this type of machine more than a good variable gear, and we hope and expect to see more of them equipped with an emergency gear in the near future.

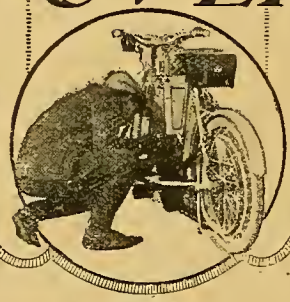
Horse-power and Cubical Capacity.

THE diversity of opinion with regard to the horse-power obtainable from a given cubical capacity is surprising. We have many times referred to this subject, and it is annually brought to the immediate notice of our readers by means of "The Buyers' Guide." We must say we sympathise to some extent with prospective purchasers of motor cycles who read in the columns of the Guide that single-cylinder engines varying from 80 mm. bore to over 87 mm. bore (without taking stroke into consideration) are all reckoned as 3½ h.p. Obviously some must be over and some under this apparently magical horse-power, which is the popular catalogue description given to most single-cylinder engines of greatly diverse dimensions.

If manufacturers would agree to reckon power on cubical capacity; then purchasers would have something more definite to guide their choice. For example, but without any idea of suggesting the actual dimensions, engines from 350 to 400 cc. might be reckoned as 3 h.p., up to 450 cc. 3½ h.p., 500 cc. 4 h.p., and so on.

This calls to mind another suggestion, viz., that our governing body might define horse-power by adopting a formula like the R.A.C. has done for car engines.

How to Overhaul a Motor Cycle



By CON-ROD.

IN the following article it is my intention to show readers who are interested how to set about a complete overhaul of their motor cycles—not only the engine and accessories, but the various parts of the cycle itself, including a few hints on the care of tyres and belts.

There are one or two jobs, such as vulcanising outer covers and inner tubes and enamelling frames, which are usually sent out to be done, but the majority of the easier adjustments can be tackled at home with the aid of a few tools which many motor cyclists possess.

At the outset a fair number of tins should be provided ranging in size from two-ounce tobacco tins to ordinary coffee canisters. These are used as receptacles for the various nuts, screws, balls, and clips, and loss and confusion are avoided. If the tins be watertight so much the better, as paraffin can then be poured on to the parts, when a little judicious shaking will work wonders in freeing them from oil-soaked mud, rust, and grit.

Before dismantling any part of the machine it is advisable to pour about a quarter-pint of paraffin into the crank case through the oil inlet, then, having stopped this up with a plug of wood, pedal or otherwise revolve the engine vigorously on the stand. This will release a very great part of the congealed and half-burnt oil in the crank case and on the under side of the piston. Remove the drain plug and allow the dirty oil to escape. The dismantling process may now begin in earnest.

Silencer and Exhaust Pipe.

Detach all wires and controlling levers, placing the nuts and screws in their appointed tins, and disconnect the silencer and exhaust pipe. These, if already of the right proportions, need not be altered except to clean them. The pipes are generally easily attended to, but if there should be any trouble owing to bends, the pipe may be cleaned by filling it about one-third full of small pieces of grit and then shaking it well. The silencer itself is best cleaned by putting it bodily in the fire and allowing it to attain a fairly bright red heat. When cool the dirt can be removed easily by tapping or brushing. This does not apply to copper or brass silencers, which should be cleaned by scraping only. If back pressure be suspected the capacity of the existing holes in the silencer may be considerably increased by rounding off the edges of the holes on the inside of the plates as at A (fig. 1). These are very often roughly drilled or punched, with the result that a burr is left on the edges, which considerably impedes the passage of gas by causing eddies at this point B (fig. 1). Probably there may be a slight increase in the volume of sound, but it will be hardly appreciable. A tool for rounding the edges is readily made out of a bradawl or small screwdriver by filing a curved shoulder on the broad part as at D (fig. 1), the width at E being the same as the diameter of the existing holes. Finally, the pipe and silencer, after being thoroughly cleaned and rubbed down with emery cloth should receive a coat of dead black paint, such as Radiolene or similar paint sold for cylinders. They will then be ready for fitting up again. A polished exhaust pipe or silencer is a mistake, as bright surfaces do not radiate the heat as well as dead black ones.

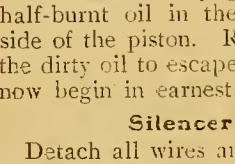


Fig. 1.—Removing burr on silencer holes.
A. Hole after being reamered out.
B. Hole with burr.
C. Tool for removing burr.
D. Cutting edge.

Frame and Forks.

After removing the tank, engine, front and back wheels, etc., strip the frame of all detachable parts including the mudguards, not forgetting to remove the top and bottom ball races from the head. These should be marked, as sometimes they are not interchangeable. The frame and forks should now have the old enamel burnt off, and this may be done either with the aid of a good gas stove or a painter's benzolene lamp. It is by no means such a long job as it might appear at first sight if one be provided with a scraper of suitable shape. This may be made out of a piece of sheet steel about 8in. long by 2in. wide bent to a right angle about 1in. from one end. This part should have a semicircle filed out of it $\frac{1}{32}$in larger than the top tube of the frame. With this the burnt enamel may be peeled off in double quick time. The frame and forks should then be well rubbed down with fine emery cloth and a careful inspection made to detect any fractures in the tubes. This may also be checked by suspending the parts from a peg or wire and "ringing" them—that is, rap the tubes with a key or any other small metal article which is handy, and note the sound given out. If this be sharp and hard and has a ring about it the tubes and joints are all right, but if a dull, jarring sound be emitted it is a sure sign that there is a fracture somewhere, and the faulty part must, of necessity, be replaced or repaired. The re-enamelling may very well be done

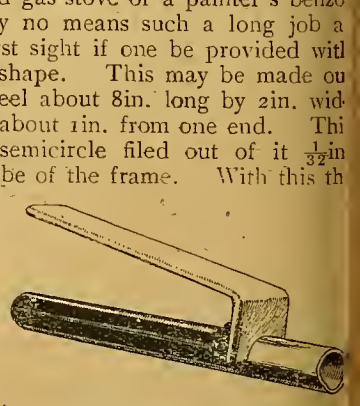


Fig. 2.—Scraping the burnt enamel off the frame tubes by means of a specially shaped scraper.

How to Overhaul a Motor Cycle.—

at home by using an enamel which does not require stoving. It possesses the advantage of not "chipping," but will not look so brilliant after a few months' use as the stoved variety, the reason being that it is not hard enough to resist the grinding effect of removing mud. Should the mudguards show signs of breaking away at the points where they are attached to the back and chain stay bridges, fit a thin steel plate on the inside the full width of the guard and about 6in. long, allowing the bolts to pass through suitable holes placed near the middle of the plate and fitting large curved washers under the nuts.

Covers and Tubes.

With regard to tyre covers, the usual means for filling up cuts in the tread are so well known that they hardly need be mentioned here. Suffice it to say that it is imperative that water should not be able to reach the canvas through any cuts in the rubber. These should have solution well rubbed in, with the cover bent so as to open the cut and allow it to get well down to the canvas. Then, unless they are so otherwise damaged as to need the attentions of a vulcaniser, or the makers, they are soon disposed of by rubbing French chalk well into the canvas and painting the outside with a tyre preservative. They should then be kept in a cool, dark, dry place till wanted. If the canvas has any weak places it will pay to have the cover relined, and when considering this point it is as well to remember that it will very materially decrease the chance of punctures. Many thorns and nails will pierce a single double ply of fabric which have not length or strength enough to penetrate the tube when the cover is provided with a treble lining of canvas. Make a point, however, of seeing that the new lining is brought right up to the edges of the old canvas, and not cut off just by the beaded edges, as the latter is likely to cause trouble.

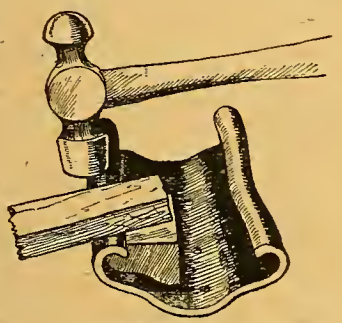


Fig. 3.—Hammering dents out of the rim. A piece of metal is placed inside the beaded edge and a piece of wood on the top to prevent damage by the hammer blows.

In the case of the inner tubes, I strongly advise vulcanising all patches. Jointed tubes also require a little attention at the ends occasionally, such as solutioning down the internal rings and external flap. When replacing the air tubes in the covers and when packing up the spare tube be lavish with the French chalk.

Wheels.

The rims should be carefully cleaned of all rust, specially along the beads, where it may cause serious trouble. Any dents should be hammered out, using a piece of hard wood between the hammer and the rim, so as not to injure it, and placing a piece of metal in the bead to prevent it closing. Truing up, if required, may be done at home by clamping the spindle firmly in a vice, protecting the thread with lead or leather, rotate the wheel slowly, holding a piece of chalk against first one edge of the rim and then the other, advancing it just far enough to leave a mark on that part which projects most. Now with a nipple key or spanner tighten up the spokes gradually by giving a quarter turn at a time to each nipple on the opposite side of the rim to these marks till they have merged into the general line of the rim. It may be necessary in the course of this operation to slacken the spokes on the same side as the chalk marks in order to get the rim to set over. In any case, when the rim is true all spokes should be tensioned to give as nearly as possible the same note when struck, and the spoke ends which protrude from the nipples must be filed flush with the nipple heads.

The spindles should be removed and the cups, cones, and balls examined for signs of undue wear or fracture and the faulty parts replaced. Most motor cyclists have been troubled at some time or other with a ball bearing which is either so slack as to rattle or if it be adjusted tighter the wheel will not swing freely. This is due to a worn cup or cone, which should be replaced. For the all-weather rider the rim, spokes, and hub should be enamelled, as this will save a lot of time in cleaning. When replacing the spindle unscrew the lubricator from the hub and fill up the barrel with liquefied vaseline or thick cylinder oil, and the bearing will then be well lubricated for the best part of the season, and require no further attention. The treatment of the bearings of bottom bracket (if pedalling gear be fitted) and pedal bearings is similar to the above except that the spindles for the latter or the cranks may require straightening.

Belts and Chains.

Leather belts should be well scraped, or brushed, with a file card on the sides, and dressed with Collan oil. Any rivets which may have pulled through should be replaced, putting a washer under the head of the rivet large enough to prevent a recurrence. Only chain belts and one or two others like the Watawata should be coiled up tightly when carried as a spare, as the small coils stretch and weaken the canvas or solid leather, as the case may be. Rubber and canvas belts should be freed from all dust and mud, and any exposed portion of the canvas, if not gone too far, may be given two or three coatings of rubber solution by way of waterproofing. This may also be applied to the cut ends of the belt, and so, by keeping the wet out, lessen the chance of rotting the canvas and the fasteners pulling through. Be sure that your spare fasteners are in working order, and always carry two spares. If you desire to be really self-reliant, carry a complete spare belt ready cut and stretched to the correct length, and fitted with a fastener.

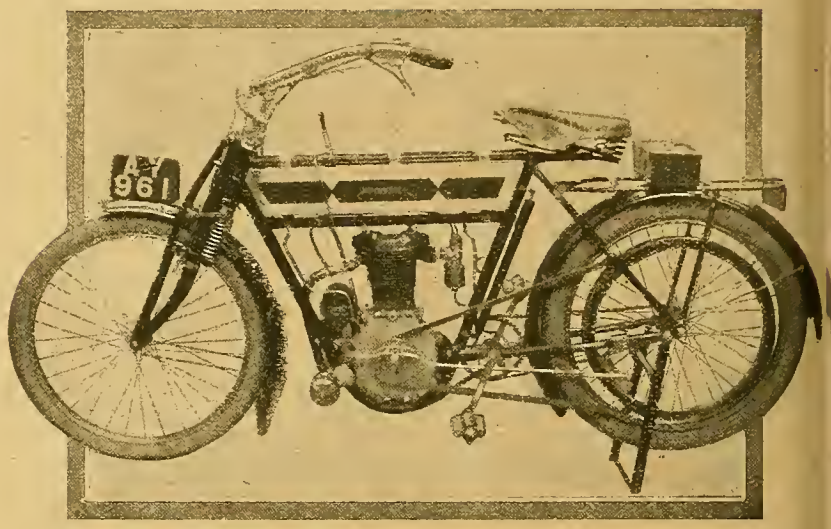
As regards chains, both for driving the back wheel and the magneto, there is no better method of cleaning them than washing them first in paraffin, hanging them up to drain, then, after previously heating the chain, immerse it for fifteen minutes or so in melted Russian tallow. The tallow should then be allowed to cool sufficiently to show signs of thickening, when the chain may be removed.

If it be taken out before the tallow commences to solidify the hot grease will drain out of the joints.

(To be continued.)

THE NEW CLYDE MOTOR BICYCLE.

THE Clyde motor bicycle for 1910 is a well designed machine of neat appearance and on well-tried lines. The model illustrated is fitted with a 3½ h.p. single-cylinder White and Poppe engine, 85 by 85 mm. bore and stroke, but a J.A.P. engine of the same dimensions may be obtained instead if ordered. A free engine clutch and Phelon & Moore two-speed gear are also optional fitments. It will be noticed that the saddle is carried on an extension of the top tube to give a low riding position. Other standard features of the Clyde are: Special design of loop frame, band and luggage carrier, footrests, Druid spring forks, and B. and B. carburetter. The brakes consist of a front rim hand-applied brake, and a belt rim brake operated by a lever on the footrest. The magneto is neatly situated in a screened position in front of the cylinder. It may not be generally known that the makers of the Clyde—Messrs. G. H. Wait and Co., Leicester—were one of the pioneers of magneto ignition for motor cycles.



The 1910 model Clyde, with the engine carried in a loop frame, presents a very taking appearance.

A FAMILY SIDECAR.

MR. A. POWELL, of West Bridgford, Nottingham, sends us photographs and particulars of his new sidecar combination which he has fitted up himself, and which no doubt will be scrutinised with interest. The machine is undoubtedly a most pretentious one—probably too pretentious—for it is demanding a little too much for any motor bicycle and sidecar to carry five.

The specification of the machine is as follows: 8 h.p. J.A.P. twin-cylinder engine with m.o.i.v. J.A.P. handle-bar controlled carburetter and automatic lubricator; Chater-Lea No. 6 frame; J.A.P. free engine clutch controlled from handle-bar; handle starting; footboards; Michelin 26in. by 2½in. extra strong tyres; 1in. Watawata belt; dual ignition by Bosch magneto and Fuller's coil and accumulator; and Cowey speedometer.

The sidecar is a flexible pattern Montgomery, fitted with special attachment at rear to accommodate two children. There is a luggage box under sidecar seat, which is useful for touring purposes.

Both the bicycle and sidecar are enamelled grey.

A "family" sidecar owned by Mr. W. Powell, of West Bridgford, and described above.

We are repeatedly asked by riders of both magneto and battery ignited machines how they can prevent explosions in the silencer when the exhaust valve is lifted. Any motor cycle engine which is subject to it can be cured by fitting a handle-bar switch. A very neat type of switch for handle-bars has been submitted to us by the Bowen and Odery Manufacturing Co., 62 New Cross Street, S.E. It can be fitted in such a position that the switch lever can be placed in the "on" or "off" position with a touch of the finger

An Owner's Experiences with a Scott Motor Bicycle.

NOT having read so far any description of a private owner's experiences with the Scott two-stroke motor bicycle, possibly a short account may be of interest to those who contemplate investing in one of these machines. I bought mine in November last, and though I have only ridden a few hundred miles, the fact that this distance has been over Irish roads during the winter months makes it equal to double the distance on good roads in summer time.

For ease of starting, one must go far to find an easier. A little petrol is injected through the spring nipples on the side of each cylinder, at any rate in cold weather, and then, while seated on the saddle, a smart push with the instep of the right foot on the starting crank, which is permanently attached to the back hub, and the engine starts. You close the handle-bar controlled throttle a little when the engine is running well, a matter of a few seconds. Then, with your left foot on the ground, press the low gear pedal gently with the right heel, and off you go smoothly without jar. By adjustment of throttle and extra air lever you can run at about eight miles an hour on the low gear, and by closing the extra air, and cutting the magneto in and out with the handle-bar lever, you can crawl behind cattle or traffic, as I frequently have to do on market days.

Changing Gear.

When the rider is ready to go faster, the high gear pedal is pressed forwards and downwards, as smartly as you like, and the hum, which on the low gear sounds loud and of a high tone, changes to a low quiet note. In fact, when the mixture is correct, the rider can really only hear the swish of the chains.

If you want to run up to a point and stop, you cut out your magneto, put your gear pedal into the horizontal free engine position, and apply your handle-bar brake. If you want to pull up short, you go through the same process, but put on the shoe brake on the back sprocket wheel, which is operated by a pedal placed conveniently near the left heel. This will pull the machine up and stop the engine, but the jar must necessarily be a strain on the engine, so unless there is urgent need it is always better before stopping to put the gear pedal in the free position.

The control becomes quite automatic in a very short time, though I suffered one fall when new to the machine, through forgetting the heel pedal, having been used to the Triumph and Bat toe pedals.

The spring forks are excellent, but the rollers must be kept oiled, or they squeak. There is practically no engine vibration, as the explosions follow each other so rapidly as to be indistinguishable, merely merging into a continuous hum.

The water cooling has so far given me no trouble, and I see no reason why it should, except that the indiarubber union piping will want renewing periodically. The gauzes over the transfer ports want looking to occasionally, and, if fouled, cleaning with petrol and replacing. It is as well to carry a few spare pieces of gauze of the correct size, as the cost is very small. Up to the present the sparking plugs have shown no signs of sooting up.

It is a wonderfully clean machine to ride, as the undershield keeps all dirt off, and the tank, being slanted below the saddle, keeps any oil from the gear chains from flying about.

The lubricating oil is carried in the two main down tubes and injected by a hand pump placed near to the junction of seat and down tubes. This is no trouble when the oil is warmed and thinned by the heat of the engine, but when oil is cold, as in frosty weather, it is a hard job. I wish the makers could see their way clear so to make the pump that the handle pulled up towards the rider instead of away from him, as it does now.

Accessibility.

It is a great boon to be able to see the actual level of the oil in either crank case in about fifteen seconds by simply undoing a wing nut, and also to be able to verify that one's oil pump is working, as with the crank case open one can watch the level of the oil rise when the pump is operated. The carburetter seems most efficient, and the ease with which the jet can be removed, cleaned, or changed is very nice. To remove the carburetter entirely is more of an operation, but when one has done it once it becomes quite an easy matter.

The tank holds plenty of petrol for at least 100 miles, and is fitted with a large filling orifice and strainer. The magneto is excellently placed out of harm's way behind the tank, and is driven by a chain. I suppose that in time the chain will stretch enough to make a readjustment of the ignition necessary, but I have not required to meddle with it so far, and when I do the makers' instructions are so clear that I foresee no difficulty.

One or Two Suggested Improvements.

No machine is perfect yet, and as a non-expert amateur, if I were asked to improve on the Scott, I should ask for a more easily worked oil pump, or, better still, an automatic lubricator, extra air lever to be handle-bar controlled, main driving chain to be protected in some way, and a better catch for the stand.

Speaking generally, the Scott is beautifully made:

An Owner's Experiences with a Scott Motor Bicycle.—

every nut fits perfectly, and where necessary is assisted by a spring washer; so nothing seems to want to come adrift, and the tools provided in the tool case fit all nuts, etc., quite well. The tyres are the best money can buy. I have ridden now a great many miles over greasy Dublin tramlines, and only once had a sign of a side-slip. The machine is a pleasure to ride and own, and I wish I had the time to ride in the Quarterly and End-to-end Trials; nevertheless, I hope to see the Scott carrying some riders well to the fore this year. Needless to say, I have no connection with the Scott firm, but I am quite sure the makers have got a good thing, and have gone the right way about making it, viz., by incorporating the very highest class of workmanship and materials. H. G. K.

The Law and its Relation to Motor Car and Motor Cycle Owners.

A PAPER with the above title was read before the members of the Middlesbrough and District M.C.C. on the 2nd inst. by Mr. Alex Lauriston, honorary legal adviser to the club, who has kindly provided us with a copy and given us permission to publish whatever we consider will be helpful and of interest to motor cyclists.

As Mr. Lauriston pointed out, whatever appears in the paper with reference to motor cars applies equally to motor cycles, except where the contrary intention is mentioned.

The first portion of the paper dealt with the meaning of the various Acts of Parliament which apply to motors, and gave the limits of speed allowed. We regret we have not space for more than a summary of the various points which particularly appeal to motor cyclists. These are given below:

A person cannot be prosecuted for exceeding the speed limit unless he is warned of the intended prosecution at the time the offence is committed, or notice of the intended prosecution is sent to him or the owner of the car as entered on the register within such time after the offence is committed not exceeding twenty-one days as the court thinks reasonable. It has been held with regard to the former part of the above section that if a constable stops a driver and informs him that he thinks he is exceeding the speed limit, but if after he has compared his time with another constable three miles away and he finds he has not exceeded such limit he would hear nothing further about it, this is sufficient warning for the purpose of the section.

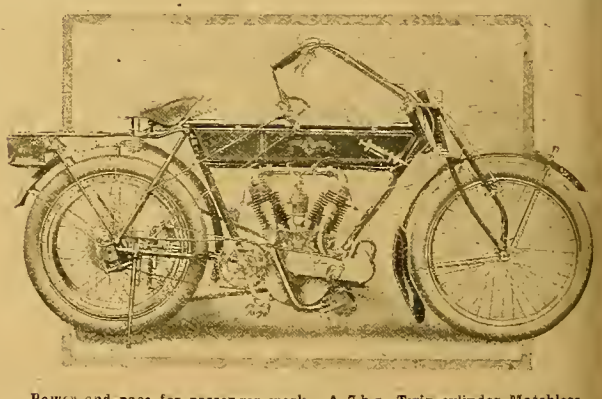
The penalty for offences under this section is for a first offence a fine not exceeding £10, second offence not exceeding £20, and subsequent offences not exceeding £30. Any person upon whom a fine exceeding 20s. is inflicted (Section II.) may appeal to quarter sessions against the conviction, but it has been held that where a person was fined 20s. and 18s. costs the section did not apply, and there was no right of appeal (Rex V. Novis, 1905).

Giving Warning of Police Traps.

Should anyone know of a police trap in his district he would have been quite at liberty twelve months ago to warn the unwary motorist of the same, as the Court has decided that by so doing a person did not obstruct the police in the pursuance of their duties, but a phrase from the lips of Lord Chief Justice Alverstone, with which Justice Darling entirely concurred, and which was pregnant with meaning and suggestiveness, is worthy of note, viz., "That the obstruction of a constable in the execution of his duty need not necessarily be physical obstruction." This decision has now been over-ruled, however, by a very recent case (Betts *v.* Stevens), and it has been held that a person can be so convicted. However, Lord Alverstone also stated that where one motorist gave another a friendly tip there was no breach of the law. He also said that in the previous case there was no evidence that there was driving beyond the limit, and that as the result of the warning the drivers pulled up. Before leaving the question of speed there is another section of the 1903 Act which is of the highest importance, and one that the motorist should be acquainted with, and yet the language of which is so general that absolutely no definite rule can be laid down to keep the motorist out of the clutches of the law but an appeal to his own commonsense. It enacts "That any person driving a motor car on a public highway recklessly or negligently, or at a speed or in a manner dangerous to the public having regard to all the circumstances of the case, including the nature, condition, and size of the highway, and to the amount of the traffic which actually is at the time or which might reasonably be expected to be on the highway, that person shall be guilty of an offence under the Act."

Skidding not Negligence.

It has also been held that where your machine skids and there is no negligence on your part, and as the result of such skidding some other person is injured or suffers damage, you are subjected to no liability. In my experience I do not think I have come across any particular offence which it is more difficult to defend a person against than offences against the speed limit or reckless or dangerous driving. That arises from the fact that the alleged offence may be committed in either case, and you are are not stopped



Power and pace for passenger work. A 7 h.p. Twin-cylinder Matchless-J.A.P. with two-speed hub gear, the engine being started by the pedals with the back wheel resting on the ground.

while so doing, consequently by the time you are charged you are unable to get rebutting evidence to resist that of the prosecution, and there is only *(in the majority of cases and particularly in the case of a motor cyclist)* your own uncorroborated word. Where a person has been guilty of either of the above offences a prosecution under one section of the Act is a bar to a prosecution under the other section. That is, if they prosecute you for going over twenty miles per hour they can't take a second prosecution upon the same facts and charge you with reckless driving and *vice versa*. Just in passing I should like you to take particular notice of a recent decision of great practical importance (Burton *v.* Nicholson) in which it was held that a motor passing a tramcar going in the same direction must pass on the right or offside, just in the same manner as you would pass any other carriage on the road. The practical importance of this case has now been done away with by the rescinding of Art. IV. (3 and 4) of the Motor Car (Use and Construction) Order, 1904, and now, although the ordinary rules of the road must be observed, there is no hard and fast line drawn, if by such observance it would endanger any person (Finegan *v.* L. and N.W.R. Co. and Hartley *v.* Chadwick).

In case of all offences under the Act (except the first and second offence which consists merely of exceeding the speed limit) the Court must endorse the licence, but it is discretionary whether or not they shall suspend the operation of it or declare the person unfit to have one. In only one

The Law, and its Relation to Motor Car & Motor Cycle Owners.—

case under the Act of 1903 has a police constable power to arrest a motorist, and that is when he drives to the public danger in the sight of a police constable and refuses to give his name and address or produce his licence on demand. Note the word "or" is mentioned in the section, so that although you give your name and address and do not produce your licence you can be arrested. It is the duty of every motorist to stop if an accident occur to any person whether on foot, horseback, or in a vehicle, or to any horse or vehicle in charge of any person owing to the presence of a motor car on the road. When you do stop you must give your name and address and number if requested, but not otherwise. This section is exceedingly narrowly drawn, but of course we must not grumble at that, as the narrower the section the more limited and restricted is the liability of the motorist. If there is an accident to a horse, stop; if to a dog, cow, or any other animal you are not bound to stop.

Production of Licence on Demand.

Any police constable can stop a driver of a motor and ask him to produce his licence, and if he fail to do so he is guilty of an offence and liable to a fine not exceeding £5; but if he fail to do so the constable cannot arrest him unless he charges him with riding to the public danger and alleges he saw him do so. It makes no difference whatever if the police constable knew that the person had a licence, the offence lying in the fact of non-production and not in the fact of not having one I know one or two motorists who are always looking the other way when they see the hand of a police constable go up, as they think that the logical result of dismounting would probably bring about a state of things which would be anything but pleasant. This sentence may appear rather of a paradoxical character when I speak about looking the other way and yet seeing the police constable's hand, but I have no doubt the meaning is apparent to all. The Act does not state you must dismount when the hand of an officer of the law goes up, nor does it make it an offence or attach any penalty for the non-dismounting, but simply states that "Your licence must be produced on demand of a P.C.," and I can't for one moment conceive if we give the greatest laxity possible to statute construction that a motion to stop could be constructed as a demand for a licence. However, you must stop if you see the hand, as the weak part of the Act has been strengthened by the Motor Car Order 1903, which declares this. You must also stop if a person with a horse asks you to do so. Suspension or endorsement of licence gives no power whatever to the person aggrieved to appeal against the same, but disqualification to hold a licence gives a right of appeal [Sec. IV. (4)]. This is without doubt a section which might possibly bring about a tremendous amount of hardship to the motorist, seeing that the Act does not limit the time during which an order for suspension may last.

Audible and Sufficient Warning.

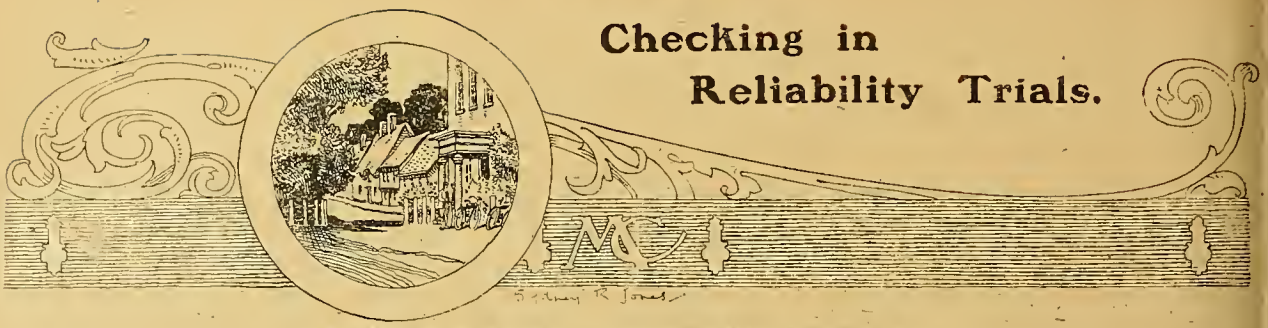
With regard to the question of carrying a bell or other instrument capable of giving audible and sufficient warning of the approach or position of the machine, lighting up between one hour after sunset and one hour before sunrise, and also having two brakes. I should like to draw your attention to two decided cases dealing with the above matters. The first is that sunset and sunrise are to be considered at the place at which the motorist is actually at when the alleged offence is committed, and not as to time of sunrise and sunset at Greenwich. The other decision is where a person was charged with not having two independent brakes on the car he was driving. The car had one brake on the back wheels, and the only other brake was that obtained by using the engine so as to lock the wheels. The magistrates found that, although the engine could be used as a brake, it was not an independent brake and convicted the offender. The magistrates' decision was upheld upon appeal.

WATER COOLING ON MOTOR BICYCLE ENGINES.

I WAS very much interested in the article on water cooling in *The Motor Cycle* of January 3rd, having ridden a water-cooled motor cycle myself for the last four and a half years. I bought my first machine (a 2 h.p. Quadrant) in 1902. I tried various other makes during the two years following. In the autumn of 1904 I examined a two-cylinder air-cooled machine, the Princips. I also had some correspondence with regard to the Hamilton, but found it impossible to get delivery of either under a couple of months, so finally invested in a twin-cylinder water-cooled Iris engine and a brass water tank provided with two small white metal radiators on either side.

I had previously read an account of this engine in *The Motor Cycle*. I examined the complete machine both at the show and at Brixton. I did not take a fancy to the frame, so I had the engine, etc., fitted to a big Chater Lea dropped frame. The cylinder dimensions were 70 mm. by 100 mm., and there was any amount of power. Later on I discarded this engine in favour of a water-cooled single-cylinder White and Poppe. This was a beautifully finished piece of work, but rather small according to my idea (80 mm. by 85 mm.), so I sold it and bought a Star with water-cooled single-cylinder Stevens engine (90 mm. by 96 mm.) This machine, which I still ride, develops immense power, and will take me anywhere. The engine has never been taken down, and the original valves and springs are still in use. The former have been ground in twice. My mileage for the four and a half years is about 8,000, chiefly made up of short journeys in hilly country. The water tank holds about a gallon, and I have no radiator, but eight or ten horizontal tubes, open at both ends, run right through the tank. I use this machine in the working of a scattered country medical practice, and find the cooling sufficient; but if a long journey is undertaken, the tank requires refilling about every fifteen miles. This is with a gear of 4½ to 1 and a fairly efficient carburetter. The machine runs about sixty to seventy miles per gallon of petrol, and my weight is fourteen stones, that of the machine being 168 lbs.

My experience with the twin-cylinder Iris was similar to the above, though the tank on that machine was somewhat larger. I used the same tank with the White and Poppe single-cylinder engine, and found, of course, that the water lasted much longer. My experience with tricars of three and four years ago fitted with the thermo-syphon system was that the water boiled in a few miles. On my 12 h.p. Swift car I have toured for a couple of weeks in Devonshire, and lost barely a pint of water; yet the whole cistern only holds about three and a half gallons. In my opinion, a water pump, radiator, and fan make the whole difference. The water pipes on my motor cycle are not large, and, of course, big waterways and large radiators would make a difference, but I doubt if water cooling on motor bicycles is suitable for touring and long distance riding. I have heard excellent accounts of the Scott, and hope to try one before long, for if only rapid evaporation of the water can be prevented the water-cooled machine presents many advantages, amongst which are no loss of power from overheating and greatly prolonged "life" for the engine, especially its valves and springs.—M.R.C.S.



Checking in Reliability Trials.

By FELIX SCRIVEN, Trials Hon. Sec. Bradford M.C.C.

WITH reference to "Ixion's" remarks in the issue of January 17th on the subject of checking in reliability trials, it may not be generally known that the system adopted by the Bradford Motor Cycle Club has been most successful, and is one that should be carefully considered by committees who have the arrangements in hand for our big trials.

In the first place, a checking committee is formed from a number of riders who are willing to undertake the duties of checkers, and a goodly number of checking stations are decided on, the chairman of committee or some other experienced rider generally suggesting the likeliest points at which they should be situated.

I must first point out that in the Bradford Club the trials committee depends almost entirely on surprise checks, only a few known checks being stated on the route card.

Trials are held primarily for proving or disproving the reliability of rider and machine, and there is no surer way of detecting unreliability than by checking a rider at an unexpected point.

In all the Bradford Club's trials it is stated on the route card that "a check may be taken at any mile post *en route*," and, furthermore, in all competitions (except those reserved for novices) a stringent rule is enforced. "No adjustments whatever allowed in control": thus the only thing which can be done to a rider's machine in control is the replenishment of petrol, oil, and carbide.

Now as to the equipment of riders and checkers, both are, of course, provided with route cards which show the scheduled time of the first man at various points *en route*, and which also give total and intermediate distances.

The Essence of the Regulations.

The rider is also provided with a glass fronted watch case which is capable of being sealed, and which may be put in the pocket, clipped to the handle-bar, or can be attached to any part of the machine or the rider's anatomy which may happen to be convenient. The rider turns up at the start and sets or gets his watch set to the official time, and stows it snugly away in the watch case amongst plenty of cotton wool, placing the face of the watch so that it is easily visible through the glass front of the case, which is sealed. Then at the word go he rides off, keeping as near as ever he knows how to an average of twenty miles per hour.

At a point, say, exactly five miles on his journey, he may quite unexpectedly encounter a checker. Of course, the competitor should arrive at this point fifteen minutes after he started, and the checker promptly takes the actual time of the rider's arrival from the sealed watch, which the rider must, if required, immediately on coming to a standstill submit for observation to the checker.

I can hear someone say, "What about filling in checkers' cards?" The necessity for this is done away with.

The checker has been provided with a checkers' duplicate book, with its pages divided into leaflets which can be detached by tearing round the perforated edges. On each leaflet, which is numbered like a cheque, blank spaces are provided, which the checker must have previously filled in as far as possible.

The leaflets read as follows:

Check taken at ..... (the number of) Miles to ..... (the name of place) and ..... (the number of) Miles from ..... (the name of place). Competitor's number ..... Competitor's time ..... Checker's signature .....

Now it will be seen that every blank space can be filled in beforehand with the exception of "competitor's time," so that the sole business of the checker on the arrival of a competitor is to read the time from the sealed watch and put it down on the leaflet, tear the leaflet out, and hand it to the competitor, who by accepting it acknowledges the checker's figures to be correct. Should the competitor's watch stop he must declare it, and take the checker's time in the ordinary way, and he can at the first opportunity replace the faulty watch and get his watch case resealed by an official.

Results Easily Calculated.

At the end of a competition any competitor can reckon up for himself the number of points lost, by simply referring to the leaflets torn from the book and of which the checker holds a duplicate, and see to what extent he varied from scheduled time at the various checking points on the road, so that he is bound to be absolutely satisfied with the declared result of the competition. At the end of the competition it is the duty of the checker taking the finishing times to see that all seals on the rider's watch cases are intact.

After performing their duties checkers must immediately hand in to the trials secretary or other official the counterfoil book of duplicate signed pages. Should a competitor dismount in sight of a checker his time is immediately taken.

The trials committee now examine the books and calculate from the duplicates the points lost by each

Checking in Reliability Trials.—

individual. There is also a recording slip to each page of the checker's book, on which it is stated by the checker in what competition and at what point his check has been taken, so that in the checker's book there is a complete and permanent record of all checking times taken in competitions and of the numbers appearing on each leaflet of the page.

This system may sound a shade complicated, but in practice it has proved no small success, and I see no reason why it should not be applied to any number of competitors. We always start competitors at two minutes intervals, and we find that the checkers have ample time to do their work.

I have not had to deal with a reliability trial in which there has been a field of sixty competitors, but have assisted in the organisation of trials covering a distance of about 420 miles with a field of thirty-five entrants.

There seems to be a deal of "scrapping" to obtain petrol and to get checks signed in the competitions to which "Ixion" refers, and for our system of checking this would never do, so as a perfectly natural sequence we schedule a ten to fifteen minutes stop (strictly in control) at any point where we consider a rider's supply of petrol will be likely to be getting low, and we endeavour to fix these points not at an ironmonger's shop, but at a garage or hotel where an efficient staff, supervised perhaps by one of our own officials, does the necessary replenishing of tanks.

In our twenty-four hours run (for example, Bradford to Edinburgh and back, a distance of over 400 miles and considerably harder than London to Edinburgh, as we get a double dose of the hilly half and very little of the flat), in order to qualify for a gold medal, one must at no point of the journey be found more than three minutes ahead or ten minutes behind one's scheduled time.

Suggestions for the Six Days' Trials.

For the six days' trial I do not suggest so drastic a regulation as this, but I would do everything to encourage steady and regular riding, and disqualify for premier awards any rider who was unfortunate or unskilful enough to be, say, twenty minutes behind and ten minutes ahead of his scheduled time at any point during the 1,000 miles of the trial, neither would I award him premier honours had he lost more than a predetermined aggregate number of marks.

I would suggest that threequarters of an hour every morning should be amply sufficient time for adjustments and very minor repairs. That there is always a chance of a competitor taking the wrong road I agree, but if the route card be properly compiled and give sufficient directions for doubtful turnings, together with a certain number of special signs or guides placed at the road side, the risk of a careful competitor spoiling his chance by losing more than twenty marks at one check would only be a small one.

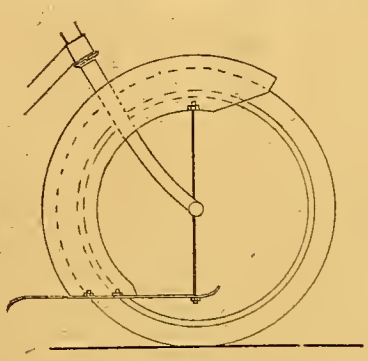
"Monotonous," you say. That I grant, but it is the monotonous reliability of our present day mounts which makes it so, and there is no reason why in such trials as the six days, riders should not be despatched in pairs at two or three minute intervals. Also the six days' trial competitors are lucky enough to have their competition livened up by two or three hill-climbs, and I feel convinced that events such as trials based on the above lines are the only ones which have a future before them, and which will discover to any appreciable extent the weak points of machines. For instance, where would our friend Mr. B. H. Davies have been after one or two of his lengthy stops owing to carburetter troubles?

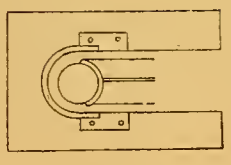
Organisers and competitors must unflinchingly face the fact that trials, to be of any real worth, can no longer be regarded in the light of a pleasant ride round the country by a number of most amiable enthusiasts.

As a matter of fact, I believe that the six days' trials are looked down upon as child's play by some of our keenest North of England riders, and after having experienced the rigours of many long trials on the above lines, and read the criticisms of many contributors and correspondents in *The Motor Cycle*, I am inclined to think that they are justified.

A MUDGUARDING DEVICE.

Mr. Henry A. Ellis, M.A., M.S.A., 10, Fisher Street, Swansea, has provisionally patented a mudguard for motor cycles which comprises a flap or shield suspended about the wheel and near to the ground. The ordinary mudguard effectually stops the mud which is thrown up by centrifugal force, but does not ward off mud splashed outwards by the contact of the wheel with the muddy surface. The shield consists of a wide strip of material, bifurcated to admit the wheel, and curled upwards at the front and downwards at the rear. The shield is bolted, riveted, or fastened to the existing type of mudguards and suspended or otherwise fixed to the hub spindle. This does not appear to differ greatly from a similar device we have seen in use on pedal cycles.





The patentee says this shield, if used in conjunction with a wide flap guard, as shown on the drawing, will be found effectually to prevent the rider being splashed with mud, whatever the state of the roads.

The Millennium Auto-grip spanner has been introduced to provide quick and accurate adjustment without injury to the nut or hands of the operator. The action is obtained by means of a short toothed rack in the loose jaw actuated by a toothed quadrant on a pivoted handle. This tool, which is manufactured by Lake and Elliot, Braintree, Essex, will take any size nut up to $\frac{15}{16}$in. across the flats, and is guaranteed not to slip or round the corners of the nut.

CURRENT CHAT

TIME TO LIGHT LAMPS

Feb. 14	...(GREENWICH)	6.9 p.m.
,, 16	... ...	6.13 ,,
,, 19	... ...	6.19 ,,
,, 21	... ...	6.22 ,,

Three New Clubs projected.

New motor cycle clubs are contemplated for Doncaster and district, Radnorshire, and Burnley.

The Forthcoming Manchester Motor Show.

Only motor cycles and cars will be exhibited at the Manchester Show, which opens on Friday next. Last week we inadvertently mentioned that cycles would be among the exhibits.

The First Aeroplane Catalogue.

What is believed to be the first British aeroplane catalogue in existence has just come into our hands. It has been issued by the Humber Co. The catalogue is an interesting production, and, we should say, should prove in the future quite an historical document.

The Quarterly Trials Results.

The decision of the A.C.U. Competitions Committee not to award marks for general excellence of design has made the positions of the leaders still closer. Only one mark separates the first eight competitors in the running for the silver cup.

Imports and Exports of Motor Cycles.

Both imports and exports of motor cycles during January were greatly in excess of the figures for the same month of last year. The number of complete machines of foreign manufacture imported during January was :

1908.	1909.	1910.
217	24	120
Value—		
£6,124	£629	£3,676
Parts thereof—		
£611	£2,184	£3,888
£6,735	£2,813	£7,564

The exports of British machines during last month compared with the two previous years were :

1908.	1909.	1910.
68	82	238
Value—		
£2,202	£2,461	£8,702
Parts thereof—		
£2,601	£2,043	£2,283
£4,803	£4,504	£10,985

Re-exports.

Re-exports of foreign motor cycles and parts during January were valued at £524, as against £1,188 in the corresponding month of last year, and £721 in January, 1908.

SPECIAL FEATURES

HOW TO OVERHAUL A MOTOR CYCLE.

CHECKING IN RELIABILITY TRIALS.

SPRING FORK DESIGN.

Timing of the Magneto Spark.

Lecturing on "Magnetos" before members of the Bolton and District M.C.C. the other evening, Mr. A. E. Bennett said: "We have all come to the conclusion that the saving effected by a fixed point of ignition provides a great saving in the life of an engine, and produces a better running effect than is possible otherwise."

A Procedure that might be Copied.

A meeting of secretaries of Scottish motor cycle clubs was held at the Carlton Hotel, Edinburgh, on the 5th inst., to arrange the fixture lists for the year and prevent clashing of dates. Representatives from the Edinburgh, Glasgow, Leith, Perth, Ayr, Dundee, and other clubs were present, and it was recognised that an arrangement of this kind will do much to add to the interest of Scottish events during 1910.

Records.

At a recent meeting of the Committee of the A.C.U. the following Brooklands class record was passed: One kilometre, flying start—W. E. Cook, 20 h.p. N.L.G., 26.553 secs., 84.247 miles per hour, June 6th, 1909.

The Early Entries for the T.T. Race.

It is quite remarkable that so large a number of entries have been received for the Tourist Trophy Race when it is taken into consideration that the latest regulations have not yet been issued. Now that the Highways Board of the Isle of Man has unanimously agreed to sanction the race, and the Governor has given his consent, there should be nothing to prevent the success of the competition.

FUTURE EVENTS.

Feb. 18-26—Manchester Motor Cycle Show, City Exhibition Hall, Deansgate.
Mar. 12—M.C.C. Opening Run.
,, 16—(Wed.) British Motor Cycle Racing Club Meeting at Brooklands
,, 25—General Meeting of Northern Motor Cycle Clubs at Richmond, Yorks.
,, 25—M.C.C. Easter Tour. Jarrott Cup Competition.
,, 28—Brooklands A.R.C. Easter Meeting.
,, 30 to April 2—Exhibition of Motor Cycles, at Leicester, Association Hall.
Apl. 13—(Wed.) B.M.C.R.C. Meeting at Brooklands.
,, 20—A.C.U. Second Quarterly Trial.
,, 27-28—Brooklands A.R.C. Meetings.
,, 30—M.C.C. Members' Hill-climb.
May 4—B.M.C.R.C. Meeting at Brooklands.
,, 13, 14, and 16 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.
,, 26 (Thursday)—International Motor Cycle T.T. Race in the Isle of Man.
,, 28—A.C.U. Open Hill-climb.

Quarterly Trial.

The judges' report of the A.C.U first Quarterly Trial of 1910 appears i this week's Supplement.

A.C.U. Annual General Meeting.

The annual general meeting of th A.C.U. will be held at 112, Piccadilly on Saturday, 19th March, at 5.30 p.m The annual general meeting of privat members will be held also at 112 Piccadilly, on March 2nd, at 7 p.m.

Permit Granted.

The A.C.U. has granted a specia permit to the Herts County A.C (motor cycle section), the North-wes London, and the Harrogate and Dis trict M.C.C. to run an inter-team com petition, starting early on Good Frida morning from London to Harrogat and back.

Tyres on Lightweights.

Mr. H. A. Cooper writes with refer ence to a paragraph in last week's issu referring to tyres on lightweights i the Quarterly Trials: "It is not fact that all lightweights qualifyin for a non-stop run were shod with on make of tyre. I rode Palmer Cords which gave me every satisfaction, an were as steady as a rock on any sur face, as well as on the tramlines righ through London."

The Cause of Two Falls.

Mr. E. F. A. Hay, of Oxford, write apologising to Messrs. Silver an Bowen for accidentally causing them to fall off their machines during th Quarterly Trial on the 29th ult. I appears that Mr. Hay, who was a non competitor was riding with the trial men when he suffered a skid, bringin down the above-mentioned competitor who were following close behind.

Motor Cycle Repairers Officially Appointed by the R.A.C.

A short time ago a paragraph ap peared in these pages to the effect tha repairers who were desirous of apply ing for the Royal Automobile Clu motor cycle official repairship shoul make their applications without delay The result of this notice was to caus over ninety firms within a week to sen in their names to the R.A.C. Tourin Department. Others should lose n time in following their example. On of our correspondents suggests tha repairers who undertake to supply les than two gallons of petrol on deman should have an asterisk placed agains their names. A list of the appointe repairers may be obtained on applyin to the secretary of the Auto Cycl Union, 18, Down Street, Piccadilly, o to the R.A.C. Touring Department 108, Piccadilly, W.

OCCASIONAL COMMENTS

BY "IXION"

Amulree and the Six Days.

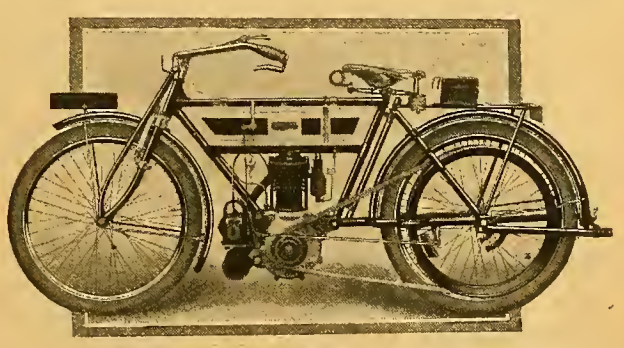
I now hear officially that the A.C.U. trials are leaving the southern or Sma' Glen side of Amulree to the Scottish Trials, and that the English entry must face it from the northern or Kenmore side. As I stated in a recent issue, I doubted if this was practicable for motor cyclists, as I have a vivid recollection of sliding down sledgewise on a car with my rear wheels locked, while the surface was execrable to a degree. I am told, however, that Mr. Bischoff has climbed it comfortably enough on a T.T. single-cylinder, and certainly the competitors are less likely to be climbing against a gale if they face it from the north. I hope the surface will be in decent order, but, in any case, I fancy no hill in any previous A.C.U. trial will have been so severe a trial for the competitors as Amulree will be this summer. Intending entrants, open out your adjustable pulleys, and envy the men with the two-speed gears. The A.C.U. is working on the right lines when it incorporates hills worthy the name in its reliability trials. A chorus of appreciation rises from riders in remote country fastnesses who know what the machines which win hill-climbs will not do when they work week in and week out, daily facing hills with single figure graded corners which are never dry or smooth.

Overgearing

Quite a number of enquiries annually received at this office show that overgearing is a very frequent reason for dissatisfaction with a motor cycle which would give excellent service if its gear were reduced a trifle. When all is said and done, the factories in which British motor cycles are constructed are chiefly situated in the Midlands and the Metropolitan district, and the only road test which complete machines receive before despatch to a customer is confined, at any rate, to a fifty-mile radius from the factory. This radius usually provides a decent test hill—often some little back lane with a short patch of single figure gradient. The machine will take this climb with a flying start when it is new, and so either a fixed pulley, supplying this gear, is standardised, or else the adjustable pulley is screwed up to this ratio. But quite a decent percentage of riders live in the hilly counties of the North and West or in one of those hilly tracts of little known country lying between our great highways, from which real climbing has been skilfully eliminated. Add to this the fact that few riders are expert enough to maintain an engine in "factory tune," and it is easy to see why some riders complain that their mounts are inefficient on hills. There are very few roads in England and Scotland which I have not traversed, and there are enormous tracts of country in which I would not regularly ride a standard geared machine, especially in spring, autumn, and winter. The first thing to do when a well-tuned machine evinces a lack of certainty in hill-climbing is to lower the gear. Some riders employ this expedient, only to discover that their engine promptly runs hot. If so, the use of the lower gear should still be possible if either the amount of lubricating oil is slightly increased or the carburetter readjusted. The latter has the more pronounced effect. I especially remember a visit one holiday to a very hilly and little known corner of England, where the pride of my eyes, a very excellent 3½ h.p., disgraced me on many hills. I met three or four local riders at an inn one day for tea, and found they all made light of the hills which had proved my Waterloo, although they were using much smaller engines. I was just resolving to go back home and learn how to tune an engine again, when I found their gears averaged about 6 to 1, whereas mine was 4¼!

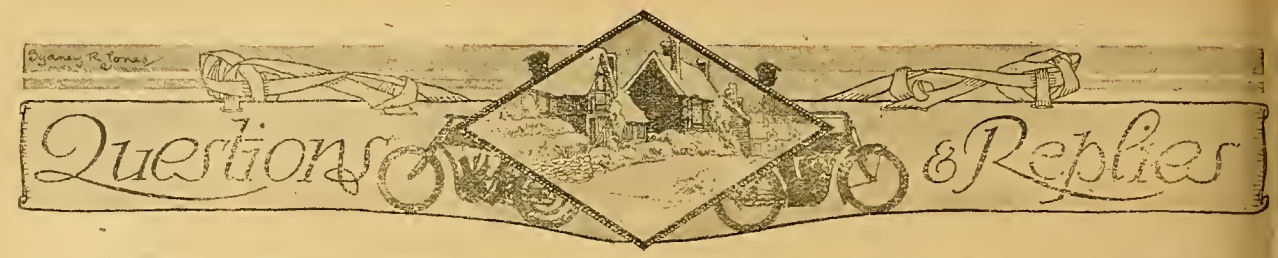
A Reply to "Ailette."

I should like to remind "Ailette" that the instances he adduces in his appeals and prophecies on behalf of the water-cooled engine all refer to rather abnormal conditions. The Mototri-Contal (rather a mouthful!) was run under conditions almost as bad as if the engine had been a stationary plant for producing electricity or shop power. Undoubtedly, if I wanted an engine to drive a dynamo or for other stationary



The 3½ h.p. Brown 85×85 mm. built for this year's Tourist Trophy Race.

work, I should demand water-cooling; and the "Mo., etc., as before." was a tiny engine, geared very low to propel a heavy load and ran very fast to maintain a 15 m.p.h. minimum; in other words, its work was a compromise between normal roadwork and power station work, and therefore abnormal. His Brooklands experiment also suggests quite abnormal work; the commercial motor bicycle engine is never asked to do twenty miles absolutely all out, and end by climbing a 1 in 4 grade—thank goodness; and if water-cooling beat air-cooling in such a test, the experiment would be all but valueless as applied to the commercial type of roadster. When "Ailette" was running his air-cooled tricar I was running a water-cooled tricar of slightly smaller engine dimensions. I admit the water-cooled type I patronised always beat his air-cooled make in timed hill-climbs, and that it was also a trifle more dependable for work on mountain passes; but there was little real difference between them in that respect, and a pretty nuisance I had with water cooling. That is the contrast in a nutshell.



A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Horse-power Rating.

"According to the R.A.C. formula of h.p. you gave recently, an 85 × 88 mm. engine works out at 4.35 h.p., yet it is said to be only 3½ h.p. Would you please explain the reason of this. Formula used:

$$\frac{\text{Bore}^2 \text{ (inches)} \times \text{no. of cyls.}}{2.5} = \text{h.p.}$$

—J. McLAUGHLAN, Aberdeen.

It merely means that the makers of the machine slightly under-estimate the h.p. As a matter of fact, an especially good engine of the size stated can develop quite 5 h.p. running at the maximum number of revolutions.

Silence Desired.

I am shortly ordering a 5-6 h.p. twin Bat-J.A.P., and am particularly anxious to have it as quiet as possible. Kindly give me your opinion. (1.) Would it run quieter fitted with two silencers instead of one; that is, one to each exhaust pipe? (2.) Which is the best silencer? Can you recommend the Clair, or is there another that you think is better?—J.H.

(1.) If you have one good and properly dimensioned silencer it should be sufficient. One silencer is standard on the Bat, so that certain alterations would be necessary if you decide to fit two. (2.) We know of no silencer better than that mentioned in your query. It effectively silences the exhaust, and can be obtained with a variable cut-out.

Verifying Petrol Level. Sluggish Starting.

Please advise: (1.) How can I verify level of petrol in jet of B. and B. carburetter? I cannot see down the jet. (2.) Everything else being correct, could an incorrect level of petrol in jet account for my inability to get more than two consecutive explosions from engine? It is a 1908 machine, fitted with Roc gear and handle starting on rear axle. Spark is correct, plug points very close, and jet clear. Spark lever two notches from full advance, air lever closed, throttle half open. Have tried plugging one of the permanent air holes, but then get explosions (slight) in silencer. Piston and flywheels seem free, as I can turn handle at a good speed.—N. J. R.

(1.) Obtain a dummy jet from the makers with the top open. This will enable you to see the height to which the petrol rises. We also refer you to some useful hints in the article "Adjusting and Testing Carburetters," issue of January 10th, page 36. (2.) We should not say that the level in the carburetter would entirely account for the symptoms from which the engine is suffering, as we presume you adopt the usual course before attempting to start, viz., flood the carburetter by raising the needle. There are many reasons, such as ignition, timing, etc. We should recommend you to check over the timing, and see if this is correct, and especially examine the action of the contact-breaker. Probably the fibre ring is worn and the points are not separating properly. Make sure also that the platinum points are quite clean and flat, and try another plug.

Swilling the Crank Case. Engine Knocking when Starting.

(1.) I wish to clean the crank case of my single-cylinder magneto motor cycle, fitted with two-speed gear, free engine, and no pedals. How much paraffin should be injected into crank case? As I do not relish the idea of running the machine up and down for a few minutes, would it be quite safe to start the machine on low gear, switching into free engine immediately on firing, and allow it to run for a few seconds? Should the drain tap be left open during the process, and will it be necessary to dismantle the engine afterwards to clean cylinder? The carbon deposit has recently been removed from piston and cylinder head and valves re-ground. How often should crank case be cleaned? (2.) What is the cause of knocking when starting with magneto somewhat retarded? Does it point to a loose bearing or to the carburetter receiving too much air? Throttle lever quarter open, extra air closed, both main air intakes open. Machine starts easily enough, but knocks at slow speed, especially when starting under the conditions stated, and does not accelerate quickly. Machine gives a good turn of speed when fairly under weigh.—A. B. C.

(1.) You should put about a quarter pint of paraffin into the crank case. Yes, you could start the engine on the low gear and run it for not more than ten seconds, which will be quite enough to swill the paraffin round: then the drain tap should be opened and the dirty oil allowed to drain out. If the carbon deposit has recently been removed from the piston and cylinder head, there will be no necessity to dismount the engine again. The crank case should be swilled out with paraffin every 400 or 500 miles. (2.) The cause of the knocking is often difficult to account for, unless, of course, as you suggest, there is something loose. If you are satisfied yourself that this is not the case, we should say that there are deposits on the cylinder and piston or the magneto spark is timed to occur too early in the stroke.

Building a Tricar.

I am having a tricar built locally, and have decided upon a 5-7 h.p. twin-cylinder air-cooled engine. (1.) Is the power sufficient, in your opinion, without a change-speed gear? (2.) Do you recommend a Peugeot engine? (3.) I have at present a N.S.U. gear fitted. Would this gear stand the strain of a 5-7 h.p. engine?—P. C. H.

(1.) The power in question is sufficient for passenger work, but even if you had a 20 h.p. machine you could not manage to tour comfortably without a change-speed gear. A low gear enables you to start from a standstill, climb hills in populated towns slowly, and enables a machine to pick up again on a rise if hindered by a sharp corner or traffic. (2.) The engine is a good one and is largely used. (3.) We believe the gear in question will be strong enough, but it would be advisable to write to the N.S.U. Co. about this.

Main Air Supply Too Great.

I have a 4½ h.p. Humber tricar, and I always have a difficulty in starting the engine even after I have injected petrol through compression tap. Will you explain the cause of the engine not firing when I inject petrol? When the engine is set going it goes off at a great speed and will not run slowly at all. If I try to regulate it in any way it will stop, then I have a job to start it again.—G.M.E.

It seems very much as if the carburetter gets rather too much air, *viâ* the main air intake. We believe your machine has a Longuemare carburetter. If so, take out the air funnel, or choke tube, and fit one or two sizes smaller. Otherwise, if you fit a shutter for excluding the air temporarily, either wholly or partially, at the moment of starting, it would get over the difficulty, and also, if you partially close it, allow the engine to run slowly when occasion requires.

Chronic Misfiring.

I have been troubled with chronic misfiring in my 3 h.p. motor cycle for the last four or five weeks. The machine has plain coil and accumulator ignition. I have sent it to several firms, but have not got it right yet. I now have it with a large firm in one of the most important Irish cities, and they advise me to fit trembler coil ignition, which they say is the more satisfactory of the two forms of accumulator ignition. Please let me know your opinion on this matter. If the trembler coil will cure the evil I shall certainly have it fitted.—C. O. M.

Probably your trouble is due to the coil. Send it to a good firm of electrical engineers, and let them overhaul it, or borrow another coil of the same type and notice if there is any difference in the running with this fitted. You will not find a trember coil to be suitable for your machine until you have altered the shape of the contact breaker cam and retimed the ignition, and also to the fact that it will slow the machine down considerably, and be more wasteful in current than a good plain coil.

Deposit on Platinum Points. Leather and Rubber Canvas Belts.

(1.) There appears to be some white deposit on contact points of my 1907 Triumph magneto? Could you please tell me what it is, and how to prevent it? I have not noticed anything wrong with the engine, except that I am bound to retard ignition a little if going slowly through a town, otherwise the engine knocks. Two or three months ago I could always drive with firing lever fully advanced at any speed; in fact, I did not touch it at all, but used the throttle (B. and B. handlebar control). Bell crank very little worn, and points separate just over $\frac{1}{32}$nd of an inch. (2.) Would a Watawata belt be much trouble to keep in order, and does it or any other leather belt wear out the engine pulley very quickly? I am inclined to over oil, and it comes out round the pulley, so that I have to take off the rubber belt after a ride.—G. C.

(1.) The white stuff referred to is usually platinum dust caused by the sparking at the contact points. Trim up the points with a fine jeweller's file, leaving them quite flat and clean. The best way to reduce it is to keep the condenser connections clean (see diagrams in "Motor Cycles and How to Manage Them"). It depends upon how the magneto is timed whether it is necessary to retard the lever when running slowly, but in most cases it is necessary to retard the ignition when driving slowly to prevent the engine knocking. (2.) You will find the belt suggested in your letter to be quite a good and exceptionally long-lived one. Of course, it needs more attention than a rubber belt, and must be dressed occasionally with Collan oil. It will not wear the pulley unduly if you clean it periodically of grit and mud.

A Loss of Power.

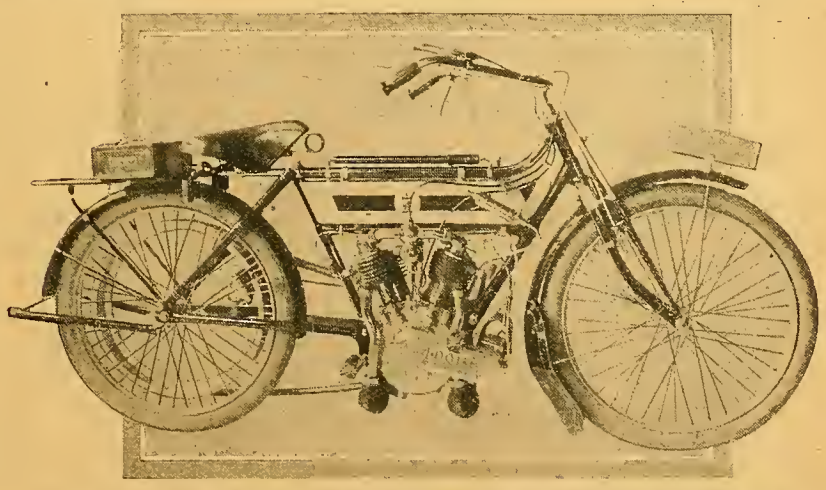
What is wrong with my 3 h.p. Lincoln Elk motor cycle? Although the compression is good, the machine will not look at the slightest hill, neither will it attain any speed on the level. The machine does not rush forward as it should when the throttle is suddenly opened, but it gathers a little more speed slowly. There is no "snap" in the sound of the exhaust, only a muffled sort of sound. All this appeared to me to point to a fault in the carburetter. But I have had the carburetter (B. and B.) off, and the jet, the slides, and the float are all in perfect order. Could you enlighten me as to the cause of the trouble?—P.H.

Your trouble is one for which it is most difficult to account without testing the machine, which is, of course, impossible. We should be inclined to think that the exhaust valve spring has broken, or, at any rate, suddenly lost its tension, or it may be that the exhaust valve is not lifting or closing properly, possibly due to wear in the timing mechanism. You can, however, easily see this by watching the action of the valve. You do not mention whether the petrol feed pipe and gauze are clear.

Wired-on or Beaded-edge Tyres. Registration.

Kindly advise: (1.) I am about to order a Tourist Trophy mount. Is the reinforced wired-on Dunlop tyre all right, or would you prefer beaded-edge tyres? (2.) My registration number is AJ 57. I am shortly leaving this district (Yorkshire) for Glasgow. Shall I have to register the machine there, or may I keep my old number, which I would like to do?—A. S. C., Sowerby Bridge.

(1.) Personally, for all-round work and ease of detachability we advise the beaded edge in preference to wired-on tyres. The latter, however, are generally agreed to be faster, and less likely to blow off under severe strain, such as turning corners at high speed. (2.) We are not quite clear as to what you mean with regard to your number. If you are buying a new machine you cannot transfer the number from your old machine unless you cancel it before the machine is sold. Then, if you write to the registration authorities and ask leave to retain your number, you may be allowed to do so on payment of the usual 5s. fee when registering the new machine. You may register a machine in any county or borough you like, though the driving licence must be taken out in the district in which you reside.

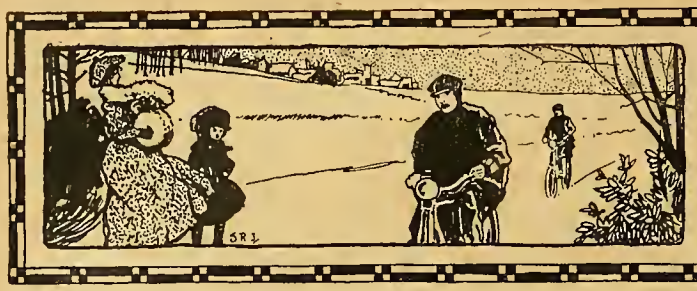


The new model 5 h.p. Twin-cylinder T.T. Dot, to be exhibited at the Manchester Motor Show, which opens on Friday. The engine is a Peugeot, carburetter Amac, and magneto Simms.

SPARKLETS

In the issue of January 31st under the heading of "Some Features of American Motor Cycle Design," we illustrated a "Curtiss-Marvel" piston with lubricating channels arranged in spiral form from top to bottom of the piston. The Norton Mfg. Co., Ltd., Floodgate Street, Birmingham, point out that they also use this system on piston and rings, and first adopted it four years ago.

The Laurin and Klement Motor Co. have lately produced from their works in Jungbunzlau a new light tricar. The frame is of substantial construction, the engine is of 4 h.p. water-cooled with thermo-syphon circulation, the transmission is by chain from the engine to the countershaft, and thence by chain to the rear wheel. The two-speed gear and clutch are carried on the countershaft, as is also the starting handle. The firm of Laurin and Klement, which is one of the most successful on the Continent, is a conservative one, as it still supplies a surface carburetter and low tension magneto. This probably is the sole reason why the Laurin and Klement is an unpopular mount in England, as surface carburetters and low tension magnetos on motor cycles in England are reckoned to be as dead as the proverbial door-nail. If the firm would render their mounts slightly more up-to-date they should command a ready sale in this country.



SPRING FORK DESIGN.

By G. DOUGLAS LEECHMAN.

AMONG the undoubted advances in motor cycle design apparent in this year's models, the improvement in spring forks is one of the most noticeable. As a rule, the direction of movement is a combination of the upward and backward directions, as it should be, the angle of the steering axis itself forming a very good compromise. The parallel ruler action (see fig. 1) affords this line of motion approximately, and that device deserves the general

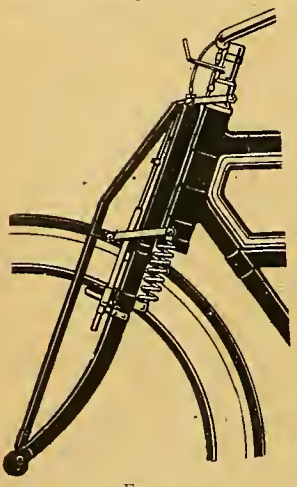


FIG. 1.

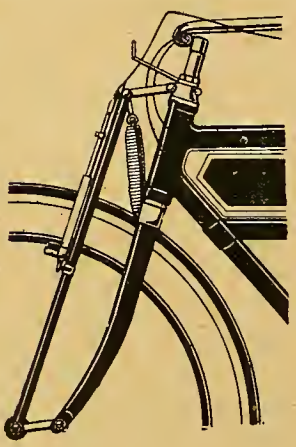


FIG. 2.

recognition it has received. Side play has also been carefully guarded against in most of these anti-vibrators, but there is evidently some diversity of opinion as to whether this is best attained in the parallel ruler pattern by applying the lower links at the bottom of the head or at the wheel axle.

With the former construction the lower links have a basis formed by the ex-fork crown which is integral with the upper one, and therefore free from shake, but any looseness in the bearings of the links is multiplied several times at the point of contact between the tyre and the ground.

With the latter alternative (fig. 2), what I may call the original or rigid fork is retained in its entirety, and the lower links are jointed to its extremities. This confines the amount of lateral looseness at the ground to an increase of about 40%. But, on the other hand, there are two more or less serious objections which can be raised against this construction, although the fork itself may be slightly lighter.

The fact that the free ends of the fork sides, deprived of their usual stiffening bond in the form of the wheel spindle, provide a very unsubstantial base on which to pivot the links, and the fact that the arrangement precludes the possibility of coupling the links together rigidly at their back ends, both allow a considerable range of lateral give that is perhaps even worse than a definite small amount of slackness. In this type of spring fork, in view of the absence of a through spindle at the rigid fork ends, the rigid fork sides should be made of increased lateral stiffness.

Another disadvantage (fig. 3), attending the fitting of the lower pair of links at the wheel axle, arises from the fact that it is necessary to introduce a joint between each link and the forward fork, as the fork must move in the direction of its length, and not swing through an angle with the links.

A Choice of Two Evils.

If the wheel axle is fixed to the forward fork ends by nuts in the usual way, the links must be free to turn relatively to the axle. This not only means that the links are free at both ends, but that they are capable of independent movement (fig. 4)—a sure source of side-play. On the other hand, if the links are locked rigidly to the wheel spindle—as they should be to ensure their moving together—the forward fork must be jointed at the bottom and thus lose a considerable amount of its steadying effect. This is probably the lesser of the two evils, but in setting out the joints their axes should be arranged in the line of the fork.

If the forward fork is jointed to the links there will be a rising and falling movement between the fork and the wheel, which will interfere with the action of the front rim brake, even if it does not altogether preclude the possibility of fitting such a brake.

Effect of Spring Forks on Steering.

In adapting an anti-vibratory device to the front forks, a good many designers have apparently omitted to consider the effect of their devices on the steering of the machines. Although an ordinary front fork curves forward at the lower end, yet a steering wheel

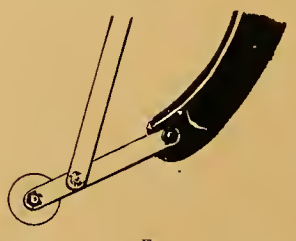


FIG. 3.

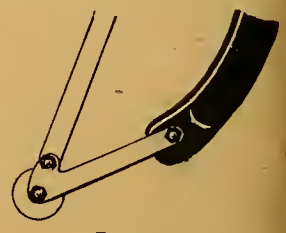


FIG. 4.

in a properly-designed machine has a trailing action. If the axial line of the ball-bearing steering head be continued downwards, it will, no doubt, pass behind the centre of the wheel, but it will pass in front of the lowest point of the wheel (fig. 5), and that is what matters, because that is where the wheel makes contact

ring Fork Design.—

ith the ground. The fork pushes the wheel forward om the centre, and the ground acting on what is really ie back part of the wheel—*i.e.*, relatively to the steer- ig line—tends to hold the wheel straight in the central lane of the machine. If the steering head were ertical, the fork would have to be curved back to get is trailing action, but as it is in practice, sloped onsiderably, even the forward curving of the fork oes not entirely cancel the "lead" on the steering.

The steering line should fall about two and a half

FIG. 5.

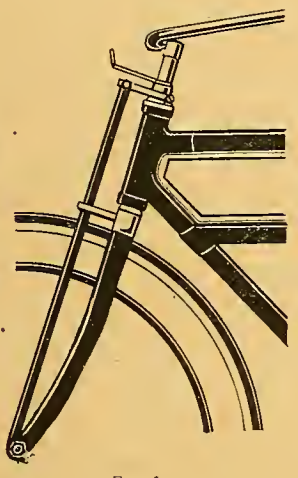


FIG. 6.

three inches in front of the point of contact between e wheel and the ground. The mistake some of the esigners have made is that in adding the spring evice they have set the wheel some inches further rward, and have thus prevented the trailing action g. 5).

Motor bicycles having such forks would have no tomatic tendency to balance and run straight, but ould have to be steered positively all the time. The rider might not be conscious of the trouble, but he would probably suffer a good deal more strain in the arms during a long run than on a machine with perfectly-designed steering head and forks. If the springing system involves a forwardly arranged wheel, some or all of the curve should be taken out of the forks to compensate for it. This will bring the wheel back into the old position relatively to the steering axis and restore the automatic balance.

That Wretched "Old Man of the Sea,"

the horizontal top tube, not content with spoiling the back frame, comes in and complicates the spring fork problem also. For, as the front wheel has to be free to rise and fall relatively to the main frame, it is necessary to leave plenty of clearance between the wheel, or rather the mudguard, and the bottom tube. Hence the front end of the tube has to be brought up nearer to the top one, and the connection of the frame comes dangerously near to the treacherous "pin joint."

The raising of the bottom tube cannot very well be avoided, but there is no mechanical reason why the top tube should not be sloped upwards to a corresponding extent.

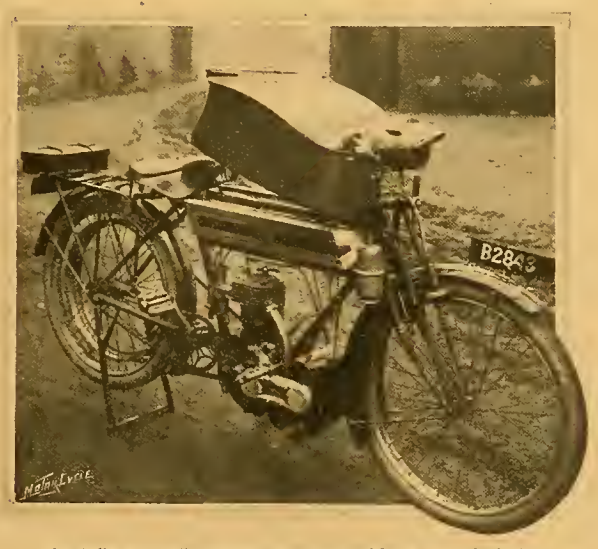
Anti-vibrators Indirectly Strengthen the Forks.

Lastly, I may refer to the influence of the springing on the strength of the fork. Almost, if not quite, all anti-vibrators strengthen the forks indirectly by saving them from violent shocks; the stresses are dissipated so that there is not the same excuse for fork breakage at any particular point, such as the stem or crown. This is a valuable gain, but apart from it, though the addition of, say, a supplementary guide fork may give an appearance of increased strength, such is generally one of those appearances that are proverbially deceitful. In one or two systems an additional tube is fixed in front of the head, and is connected to the stem top and bottom. This is certainly a source of increased strength, but structurally many spring forks are weaker than rigid ones (fig. 6). In securing comfort it is advisable not to overlook the element of safety.

A WEATHER SHIELD FOR THE HANDLE-BARS.

A NEW design of weather shield for the handle-bars called the Molineux is illustrated herewith. During thorough tests in the recent inclement weather the inventor (Mr. G. F. oleman, 88, Waterloo Road, Wolverhampton) tells he found it to be an admirable attachment from iny points of view, as it protects not only the hands d arms, but also that vulnerable portion of the body, e "waist line."

The Molineux shield affords ample protection while lowing complete freedom of movement to the rider. does not in any way necessitate alterations in stan- rd construction. It is made of thick patent leather ounted on a rigid sheet of fibre, which is ed to the handle-bar by means of four plated brass ips. The fibre sheet is adopted in preference to framework, as the latter would produce unsightly llowing. The two clips nearest the handle grips ise the shield to sufficient height to allow for opera- n of the levers and horn, and any instruments, such speed indicator or watch, can be fixed on the out- le by cutting a slot in the shield to take their clips.



The Molineux weather shield. Note the position of speed indicator.

Scottish Taxes for Motor Cycles and Traction Engines.

A COMPARISON BY "ROAD SURVEYOR."

MOTOR cyclists have been advised in recent issues of *The Motor Cycle* to renew their local taxation licences in counties where consideration is shown to motorists, and from this I infer that the county authorities in England and Wales get this money for the maintenance of the roads. As far as I am aware, this is not the case in Scotland, where such licences are paid to the Inland Revenue authorities, so that we in Scotland have no chance of going in for "retaliation" against those counties where the persecution of motorists seems to be the chief aim of the police. Why should this be so?

I should also like to point out that in Scotland a man may own as many traction engines and motor waggons as he likes, and is not called upon to pay a single penny for licences. Surely there is something wrong here! English traction engines can be used in Scotland without paying a licence, but Scottish traction engine owners have to pay a heavy licence before their engines can haul a single ton on English soil. Another case of free trade and protection!

My motor cycle (or a motor car, if I could afford it) is indispensable to me in carrying out my duties as a road surveyor in a proper manner, and almost as necessary to me in earning my living as a traction engine is to its owner. If the licence on motor cycles be increased to £1 plus 3d. per gallon on petrol, I have no means of recouping myself for the extra outlay, whereas a traction engine proprietor would merely have to raise his charges for hauling, when the cost of the licence would fall on those who employed him, and these are really the ones who ought to pay. It is no exaggeration to say that one traction engine with loaded waggons will do more damage, on certain days, in one passage over a road than many hundreds of motor cycles would do. In the case of a badly made country road, one traction engine will do more damage than thousands of motor cycles. It is only when the roads are very dry that motor cycles do any appreciable damage, as then they tend to loosen the surface, but this only happens when a large number travel together at speeds in excess of the legal limit. When a poor motor cyclist commits a technical offence, such as exceeding the speed limit, ever so little, in one of the numerous police traps, then he usually considers himself lucky if he is let off with a £4 or £5 fine and expenses. He may have exceeded the speed limit unknowingly, but how often do traction engines exceed their lawful speed limit, and wilfully too? Do we ever hear of police traps for them! I've never heard of one!

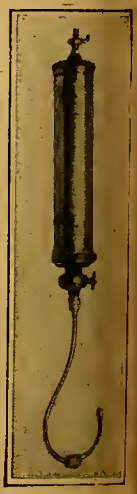
Traction engine drivers in this part of the country (N.B.), in deliberate contravention of the law, fit metal studs to the wheels to enable them to travel on the roads when it is frosty weather. Very often it is only a thin layer of the road surface that is frozen when very serious damage is done to the road. These men are never fined for this deliberate contravention of the law or the serious damage they do, and again I ask why? The poor ratepayer has to pay for it all, and when he receives his demand note he turns round and blindly blames motorists for the extra cost.

Motor cyclists at least can have an easy conscience and make full use of the public roads, for I can assure them they pay dearly for their share of the wear and tear of our highways.

MIXING THE MIXTURE.

"MELANGE" recently suggested inserting in the inlet pipe of motor cycle engines a coil spring for the purpose of breaking up the petrol and more efficiently mixing the mixture. Several readers have asked what type of spring "Melange" found most suitable, and in response to our query he says that what he finally used was an exhaust valve type of spring, fitting the pipe fairly tightly, and having the effect of corrugating the walls of the inlet pipe, and so introducing "skin friction" against the travel of the gases. A motor cyclist who is interested in the idea differs from "Melange," and thinks that a spring which fits close to the walls of the pipe with a free passage through the centre of the coil would be of little use, but if the spring were made in the form of a double taper it might possibly be efficient in breaking up the mixture, but would offer a certain amount of obstruction. He adds further that a single short taper spring with the small diameter of the coil nearest to the carburetter, in his opinion, would give the best results. Fitting a spring or anything else in the inlet pipe should be undertaken with the greatest care, as proper methods should be employed to prevent the spring being sucked into the inlet valve. If any other readers have experimented in this direction we shall be pleased to hear from them.

AN AUXILIARY PETROL TANK.



THE accompanying half-tone shows an auxiliary petrol tank which should prove very useful to agents and depot managers in showing customers new motor cycles running on the stand without the trouble of filling the regular fuel tank.

As may be seen, it is simply constructed from the tube of an old inflator and a few old connections that can be found about any cycle shop, a duplicate petrol feed pipe is then coupled direct to the receptacle, the other end fitting the carburetter union. The spare tank is merely hung by a piece of string to the frame to avoid scratching the enamel.

Riders who dismount their engines for overhauling often find that they either start with difficulty afterwards, or fail to give their full power, due, apparently, to incorrect carburetter adjustment, though the latter part of the machine has never been altered. The real cause, however, may often be traced to failing to screw up the carburetter unions properly, thus allowing the engine to draw in air *viâ* the loose unions.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Bore-stroke Ratio and Efficiency.

[4563.]—I have read Mr. Scott's reply to my letter on his criticism, but do not propose to continue the discussion, nothing having transpired to disprove my arguments showing the advantage in stroke power of an engine with stroke greater than the bore diameter. I have stated my case impartially, with reason, and as clearly as possible, and now leave your readers to form their own conclusions from the matter written on both sides, trusting that the popular but fallacious objections to the long stroke may be to some extent removed.

I beg to express my thanks for your courteous treatment, and for the use of your valuable space.

JAS. L. NORTON.

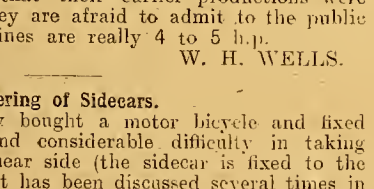
Cubical Capacity and Horse-power.

[4564.]—If one looks through the specifications of single-cylinder motor bicycles shown in *The Motor Cycle* Buyers' Guide there will be found so-called 3½ h.p. single-cylinder machines varying in cylinder capacity from 402 to 558 cubic centimetres. I think many readers, as well as myself, would be extremely interested to know why it is necessary to have this extreme variation in cubic capacity in order to produce a 3½ h.p. single-cylinder motor cycle engine. If the 402 c.c. can be made so as to develop 3½ h.p. what is the use of forcing on the public a lot of additional bulk and weight, which, according to the makers' point of view, accomplishes no more than the smaller engine. A few years ago several well-known makers of motor cycles offered for sale so-called 3½ h.p. machines; within the last two years they have considerably increased the capacity of their engines, yet they still call them 3½ h.p. From this we can only believe that their earlier productions were exaggerated, or that they are afraid to admit to the public to-day that their machines are really 4 to 5 h.p.

W. H. WELLS.

Steering of Sidecars.

[4565.]—Having lately bought a motor bicycle and fixed a sidecar to it, I found considerable difficulty in taking corners to the left or near side (the sidecar is fixed to the left side). As this point has been discussed several times in your interesting journal, I venture to give my explanation of the difficulty, and how I overcame it. I should be interested to hear if other motor cyclists have arrived at the same conclusions.



The dotted lines represent two straight edges placed beside the wheels, a few inches from the ground. If the sidecar wheel is quite in line with the two motor bicycle wheels, there is a drag to the near or left side when travelling in a straight line, and if the sidecar wheel points in towards the front motor cycle wheel too much it is very difficult to steer to the near side. The sidecar wheel, though free, is really driven forward by the fixed axle from the motor cycle driving wheel.

After a good many adjustments, measuring as indicated I arrived at the best position. The length of a motor cycle wheelbase and the width of the sidecar will have a considerable influence on the position, so that the difference fore and aft will be less or greater than the 1½in. on my machine.

HERBERT PORTER.

An Excellent Hill-climber.

[4566.]—There is a motor cyclist in this neighbourhood (Bishop's Stortford) who owns a machine, the behaviour of which has compelled me to ask, through the medium of *The Motor Cycle*, for a little information. The machine is a "Wolf" pattern lightweight, fitted with an engine of the Stevens type, with outside flywheel. The owner has added a two-speed gear, about 5in. in diameter, and of about 3 lbs. weight, and has dispensed with the pedalling gear and fitted footrests. The gear gives two speeds and a free engine. With this air-cooled tea cup of an engine, and a speed gear not so big as a penny bun, he calmly drifts up local gradients that stop dead four-fifths of the local heavyweights and 3½ h.p.'s. The engine, he informs me, is more than four years old! What is the meaning of it all? Is the motor cycle manufacturer retrogressive, and shall we in due time come to traction engines?

C. W.

Tools and Spares to be carried.

[4567.]—Now that the commencement of the active riding season is at hand there is a matter, I think, that should be given at least a little consideration. I refer to the question as to what constitutes an efficient equipment of tools and spares to be carried by the rider of an up-to-date touring motor cycle. At first sight this may appear a matter that can be very well left to the individual, but any rider will agree, when through neglect on his part to carry some tool or spare that an emergency may make indispensable, and he becomes dependent upon the resources of the good Samaritan, that the contents of various bulging and greasy bags, willingly submitted to his inspection, are rarely able to supply what is required.

This points to the fact that unnecessary tools, etc., are indiscriminately bundled into our toolbags on the off chance of their coming in useful some time or other, instead of only such articles as a careful analysis of probable requirements may suggest to the practical rider. It would be interesting to learn from your readers what they consider an ideal kit. I have read with much pleasure Mr. D. S. Baddeley's account of his 1,700 miles ride; a statement as to the amount of "running expenses" incurred would add to the instructiveness of his article.

R. WENTWORTH COOK.

Lightweights v. Heavyweights.

[4568.]—*Re* letter 4545 in the issue of January 31st. I see a Mr. Case Moriss thinks a modern 3½ h.p. would not get up Maenporth Hill. I ride a 1909 Triumph and have a friend who rides a 1909 Rex. If Mr. Moriss is willing we will meet him at Maenporth one fine day and have a try at it. I live within five miles of the hill and have been riding six years, but have had no occasion to try the hill in question. In conclusion, could you make *The Motor Cycle* bi-weekly instead of weekly? I read every word and enjoy it.

C. MARSHALL THOMAS.

[4569.]—In reply to letter 4555, I think Mr. A. D. Tyler makes rather a bold statement when he says that he doubts my statements, nor has he any authority for saying so. Perhaps he thinks I am in the habit of making public statements which are not correct. However, he says, might he ask what lightweights I really have ridden? I have ridden the following: Motosacoche (I think five machines). Rex (two machines), Moto-Rêve, F.N., Quadrant, Ariel, and a lightweight machine fitted with a Werner engine. I did not own any of the above machines, but rode them quite long enough to form an opinion; by that I mean that I rode

the machines some days, and did not just jump on for a spin. Perhaps Mr. Tyler is one of the type I mentioned as upholding the lightweight. If so, no doubt he has had longer and wider experience than I.

B. G. DURKIN.

[4570.]—I am at all times interested in reading criticisms and the general useful information that *The Motor Cycle* contains from time to time. But I am unable to digest with comfort such remarks as are contained in the views put forward by B. G. Durkin in respect to the question of lightweights and heavyweights. All men who indulge in motor cycling, or any kind of sport or pastime, should pride themselves on keeping fit, strong, active, cool headed, and of good nerve, and I am pleased to know that your correspondent "B.D.G." fulfils these qualifications so thoroughly. At the same time I would respectfully remind him that he should not set down these qualities as being unapproachable by married men, or men of forty years of age—such comment is uncalled for, disrespectful, and unwarrantable.

I do not know Mr. B. G. Durkin, but I have the pleasurable acquaintance of many riders between the ages of thirty-five and forty-five years, who, although they are riders of lightweight machines, are not a bit nervous at crossing the saddle of a 5 or 7 h.p. motor, and control it as well as most riders. The sole reason for adopting a lightweight is to obtain greater comfort, ease of control, pleasure, and economy, and the lightweight is more suitable for business purposes. In the cases I mention the heavier and more powerful machine is not adopted because of lack of nerve, strength, or pluck, as "B.G.D." implies. I hope he may long retain his present high standard of fitness, and when he contemplates taking unto himself a wife, or is bordering on the forty years limit, he will perhaps think of the time when he possessed all those great qualities he mentions, and join the ranks of the lightweight enthusiasts, of which I am one. In conclusion, I am riding a 1910 2¾ h.p. Douglas. I ride it daily in all weathers in the South Wales districts, which are very hilly and rough in many parts. It carries me in comfort, and I would not change it for any other mount I have met with of greater power. My weight is 12½ stones, I am thirty-eight years of age, and up till the present I retain all my old cycle racing day qualities of strength, pluck, and endurance. Not bad for a lightweight enthusiast.

C. H. SIMONS.

The Transmission Question.

[4571.]—With regard to the discussion on the above question in your columns during the past few weeks, there is one point regarding belt transmission which I do not think has been mentioned.

I find, for instance, that a first class rubber and canvas belt, such as the Gloria, 1in. or 1⅛in. wide, lasts longer on my present 7-9 h.p. machine than the same size and make of belt did on a previous 5 h.p. and lower. This I ascribe to the fact that I now gear 3¼ to 1 for solo work and 4 to 1 with sidecar, as against previously 4 to 1 and 4½ to 1 respectively. The lower gear and therefore smaller engine pulley required on a low powered machine has a worse effect in cracking and breaking up the rubber belt than the extra kick of a larger and higher geared engine, even with increased speed and weight of the machine.

For a machine over 3½ h.p. I think there is nothing to touch a good rubber belt, but below this power, for the before mentioned reason of the lower gear required, a leather belt such as a Watawata is more suitable, there being also less power lost in bending.

I do not doubt the fact that Mr. Pratt, together with other chain enthusiasts, can start their bicycles and sidecars from a standstill provided they have a decent clutch, but in my opinion, for prolonging the life of pulley bearing and machine generally, combined with comfort and silence, the belt is superior to either the shaft or chain drives, as at present fitted. I have used the Whittle chain belt, but think to make it the equal of the rubber variety for both comfort and wear, it should be fitted in conjunction with some form of spring or slipping drive, on top gear at any rate.

I might mention that I always remove the belt from the pulleys after the finish of a ride, except in very wet weather.

For racing, chain or shaft is no doubt faster than any belt drive.

VIVIAN OLSSON.

A Lightweight Converted to V Belt Drive.

[4572.]—Herewith is a snapshot of a 1¾ h.p. N.S.U. fitted with direct V drive by ⅝in. S.G. belt, about which I sought your advice some weeks ago. This belt has run now nearly 2,000 miles, and is still in good condition. As you may see by the photograph, not a bit of the rubber is gone from the sides.

I should also like to recommend a good plug. The one fitted to my N.S.U. has run 1,600 miles and still fires on first turn of pedals. It is a Darop. The centre piece is solid like an acorn, and fires all the way round to the body of the plug.

N.S.U. lightweight converted to direct V belt drive by a reader residing in Central India. (See letter No. 4572.)

This photograph may help some of your readers who own lightweights and are subject to belt troubles. The cost of the alterations would be about £1 at home, but it cost me £2 in Calcutta.

C. A. HOLLAND.

Fort Allahabad, Central India.

The A.C.U. Quarterly Trials.

[4573.]—I was surprised to read in the report of the Quarterly Trials that W. Pratt received full marks for Dashwood Hill, and more surprised at his being awarded a non-stop, as it is well known that he fell off his machine on Dashwood. In the Quarterly Trials last October, when sent off, my engine refused to fire until I had got some distance, so I went back and requested another start, which was refused. If this rule is enforced with one, it is only fair that it should be with all.

I also see that G. Lee Evans and W. O. Bentley are awarded non-stops. I was not aware that getting off and running alongside machines was allowed, neither did I come across a lot of thick traffic as reported. J. Gibson failed on Dashwood Hill, but I see he gets a non-stop. The 3½ h.p. Premier (G. E. Stanley) is also awarded a non-stop, although I understand traffic caused the rider to dismount twice. The 3 h.p. Wanderer (A. V. Deacock) side-slipped on Dashwood, but gets full marks. H. H. Bowen (5 h.p. Indian) broke footrests before Banbury, and repaired chain after leaving that place, and gets credited with one stop only. One non-stop man smashed his footrests without coming off (some dubious people would not believe this).

If these trials are to be of any use to the public or to the trade, I consider they should be carried out in a more fair and businesslike manner.

I had the misfortune to fall and break a pedal off and slightly damage some other parts, which was the reason of my being credited with failing to climb Dashwood and Rectory Hills. I do not complain of this, but in the interest of the firm who pays my expenses I must complain when favours are granted to others and refused to myself.

ELI CLARK.

[4574.]—I have carefully examined the official results of the Quarterly Trials, which were published in last week's issue of *The Motor Cycle*, and I find that I have been awarded only ten marks out of a possible twenty for "General Excellence of Design." Others have been awarded more, and others less. Of the latter I will not speak. What I am anxious to know is this. The Bradbury motor cycle is generally admitted to follow standard lines as regards general design. Now this machine also has special features of its own as regards design. Three of the most significant are: (1) Extraordinary accessibility to interior of engine; (2) detachable and adjustable bottom bracket; and (3) detachable rear mudguard and carrier. Why were these excellent points overlooked by the judges, or rather, perhaps my question would read better, Why were marks deducted for these points? I understand the machines were examined at the end of the trial, when the design was noted. Now my machine was not then examined, because I retired early in the trial (with a damaged arm through a fall).

Another question that I should like answered is, Why was a certain rider awarded full marks for climbing Dashwood Hill when, owing to sideslip he fell, and then finished the climb by pushing his machine? I merely ask this question because I reached the summit under the same circumstances, and was awarded no marks at all for the climb.

The competitor in question is as much surprised at the result as I am. A. T. STANTON.

[As regards our correspondent's first query, the Competitions Committee has now decided not to award marks for "General Excellence of Design." See page 124.—ED.]

Causes of Overheating.

[4575.]—Two things I notice are not impressed upon motor cyclists who complain of overheating after trying various adjustments. One is leaky induction joints, which in many cases look perfectly gas-tight, but are not. This can be tested by blowing down induction pipe (valve held on its seating by spring or otherwise), when leaks will be manifest. The other special thing is, novices are apt to take down cylinder and fail to replace washer between cylinder and crank case (if any), or sometimes throw away washer and fit a thinner one, under the impression that it makes no difference.

I myself have seen and ridden motor cycles with cylinder and plugs red-hot, and the cause has been traced to the said washers being removed, and thus raising the compression. P. G. J.

Metal for Exhaust Valves.

[4576.]—As a novice, I should be interested to know, *apropos* of "Ixion's" remarks on metallurgy, whether anyone has ever tried making exhaust valves, or larger parts of a motor cycle engine, of one of the new air-hardening tool steels. I believe these steels will work quite well when red-hot, and they certainly do cut far faster than the old steels. Possibly there would not be enough elasticity, and the head might be inclined to fly off, but cast-iron is not so very elastic, and it seems to be one of the favourite metals.

Tool steel is, I believe, difficult to work, but I do not see why it should not be possible to forge a valve to shape, under a die, and grind it true. Very likely it would need careful adjustment to get the right spring tension, not to crack the head off.

I should like to try the experiment myself, if it has not been done before, but my present valve has given no trouble yet, and as a beginner I believe in "letting well alone."

I hope to hear something on this interesting subject from someone who has had more experience. C. M. B.

Morgan's Petrol Turbine.

[4577.]—In *The Motor Cycle* for last week is a reply to some critics by the inventor of the above engine, in which he seems to think that the pressure of the exploded gas in the combustion chamber will drive the rotor. I will try to explain why this is not so. In every engine which works by fluid pressure, as Mr. Morgan says his engine is meant to do, the volume of the working chamber is variable, as, for instance, in a reciprocating petrol engine cylinder, the movement of the piston changes the volume of the space containing the working fluid. Now in the Morgan turbine, the combustion chamber has a constant volume, and, therefore, the pressure of the contained gas can do no work. Mr. Morgan says that the pressure acts on the "base" of the chamber. If it acted on the base only, well and good, but, unfortunately, it acts equally in every direction, and so the pressures on the two sides of the wedge-shaped combustion chamber exactly balance. I think he refers to the action of an injector in his illustration of a steam boiler feeding itself, but the cases are entirely different. The injector takes steam containing a large amount of energy in the form of heat, transforms the heat into kinetic energy, which energy is then used to drive water into the boiler, but notice that because of inevitable losses, the energy contained in the steam as heat is considerably greater than the energy in the water.

One question: If the heat lost is "very great," where does the efficiency come in? The internal combustion engine, whether turbine or reciprocating, is a heat engine, and the more heat transformed into mechanical energy the greater is the efficiency of the engine. PERCY J. STIRRUP.

Wired-on v. Beaded-edge Tyres.

[4578.]—I was very interested to see Mr. F. C. Mustard's letter [4527] in the issue of January 24th on the above subject, as, coming from so experienced a rider, it must command respect. I am entirely in agreement with him in everything he says about wired-on tyres, and his experience is exactly the same as mine, in that he finds wired-on tyres vastly superior to the beaded edge variety. May I suggest to him that he fits a chain loosely across under the mudguard; he will then do away with nail punctures.

"Ixion's" remarks in your issue for December 20th are very interesting, and doubtless in the main correct. I have yet, however, to experience a broken wire. The only two cases I know of were on pedal cycles, and were caused by gross carelessness.

Mr. G. Lobb in letter 4477 writes of friction between cover and rim with wired-on covers. What does he mean? Also why does he let his rims get rusty inside, and so damage the air tube? Paint is cheap, and so is tape!

I have to thank Mr. R. Wentworth Cook for his letter [4449]. It is doubtless a fair statement of his experiences. I do not agree with him regarding levers chafing the fabric of wired-on tyres. This may be because I generally find my fingers sufficient, or at most a gentle application of a "One Minute" lever. The trouble in the past has been that riders have not understood the principle of the wire and rim.

HAROLD KARSLAKE.

EXPERIENCES WANTED.

"F. W." (Sheffield) desires owners' opinions of the Wilkinson T.A.C., as regards finish, quality, and running.

"A. P." (Bristol) would like readers' experiences of the Mabon clutch on a 6-8 h.p. motor cycle and sidecar.

"S.J.S." (Exeter) desires users' opinions of the 8 h.p. Bat with P. and M. gear for use as solo and sidecar machines.

"X." (Great Yarmouth) would like readers' experiences with the Whittle Link Grip belt. Does it wear the pulley unduly?

"J. S." (Glasgow) would like riders' opinions of the two stroke twin-cylinder Scott as to general reliability, speed, and average petrol consumption.

"F. H." (St. Petersburg) desires an amateur's experiences with a 5 h.p. Indian, especially as regards riding comfort and easy starting. "F. H." would also be pleased to exchange notes with motor cyclists in Warsaw and Moscow.

Owing to the fact that the business of the Bosch Magneto Co. is rapidly increasing, due to the great popularity of its magneto, the company will shortly remove to more spacious premises at 40-42, Newman Street, Oxford Street, W. The new home of the Bosch magneto consists of a large garage on the ground floor, commodious offices on the first floor, and spacious and well lighted repair shops on the upper storeys.

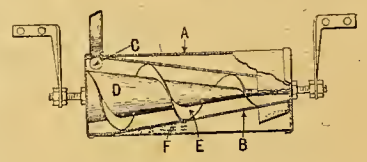
Readers who are on the look-out for a two-speed geared motor bicycle which will haul a sidecar will be interested to know that at the Phelon and Moore depot, 12, Mortimer Street, W., a P. and M. fitted with a sidecar is at all times ready for a run either in London or to any of the well-known hills in the district. The 1910 catalogue of the P. and M. two-speed chain-driven motor bicycle is ready, and can be supplied on application to the above address.

RECENT PATENTS

By ERIC W. WALFORD, F.C.I.P.A.

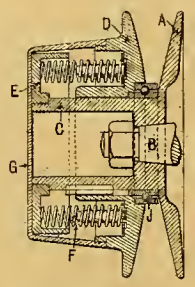
An Exhaust Silencer.

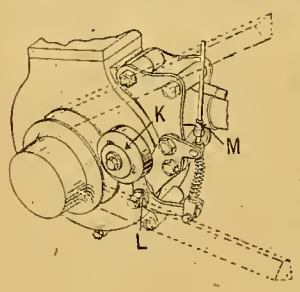
The silencer comprises a cylindrical outer chamber A, which contains a conical casing B, into which the gases pass from the exhaust pipe C. Within the casing B is a conical baffle D, which is provided with helical walls E, which deflect the exhaust gases towards the smaller end of the casing B through which they pass into the space within the cylindrical chamber A, passing thence to the atmosphere through the apertures F.—H. C. Gibson, No. 9,969, 1909.



An Automatically Adjusting Pulley.

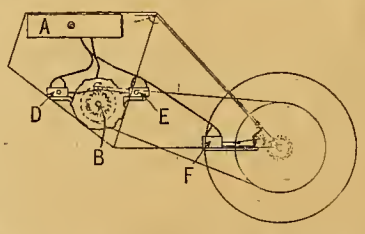
The variation in the tension of the belt which follows the variation of load on the engine is utilised to automatically adjust the movable flange of the engine pulley. The flange A is secured to the engine-shaft B, and carries a sleeve C on which slides the movable flange D. Upon the outer end of the sleeve C is screwed an annular cap E, between which and the movable flange D are arranged a number of compression springs F. A dust cap G carried by the movable flange D encloses these parts. A single track ball bearing J is arranged upon the sleeve C, and when the flanges are separated to their greatest extent a free engine is provided, the belt remaining stationary upon the outer ring of the ball bearing J. Hand-operated mechanism is also provided, and comprises a roller K, pivoted at L, and adapted to be forced between the pulley flanges by an operating rod M.—W. J. Lloyd, No. 19,697, 1908.





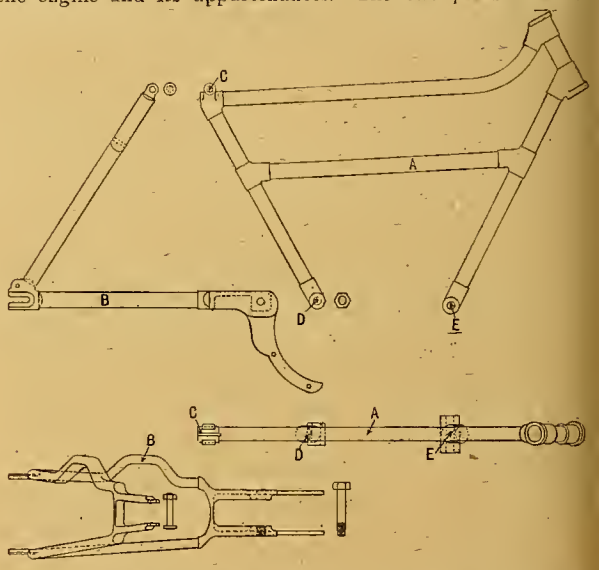
Perpetual Motion (?).

By this invention it is proposed to use compressed air to propel the machine, the power supplied being used at the same time to operate pumps whereby the air compression is maintained. Upon the bicycle is mounted a tank A supplying air to a turbine wheel contained in a casing B. The spindle of the turbine wheel is provided with the usual driving gear on one side, and on the other is geared to air-compressing pumps D E. An auxiliary air pump F is carried on the lower forks, and adapted to be geared to the rear wheel, so as to operate when free-wheeling. The inventors state that the initial pressure having been obtained by means of a tyre inflator or other pump, the compressed air may be admitted to the turbine wheel, rotating it, and so propelling the bicycle. At the same time the air pumps D E are driven, maintaining the air pressure in the tank A, and incidentally solving the problem of perpetual motion.—F. Adams and J. Trowles, No. 742, 1909.



A Divisible Frame.

The frame is divisible into two main parts—the front part A which carries the tanks, and the rear part B which carries the engine and its appurtenances. The two parts when in position are bolted together at the points C D E. The construction facilitates transport and permits of the engine receiving attention without being detached from its bed.—H. Reed, No. 15, 1909.



The Metropolitan Machinists' Co., 75, Bishopsgate Street Without, London, E.C., have sent us a copy of their catalogue, which is full of illustrations of motor cycle accessories. A copy will be sent to any reader on application.

Motor cyclists who are at all doubtful as to the working of a high-tension magneto should obtain a copy of "Motor Cycles and How to Manage Them." In the booklet are extracts from articles written in the simplest and clearest manner, which appeared in *The Motor Cycle* some four years ago.

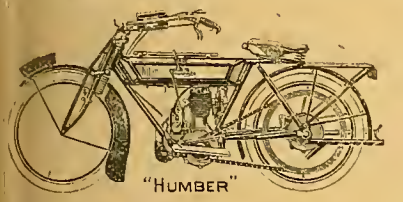
An extremely tastefully designed calendar is to hand from the V.S. Cycle and Motor Co., 178, Great Portland Street, W., as well as their 1910 catalogue. In the latter there are several excellent illustrations of the V.S. single and twin-cylinder machines, as well as detail drawings of that most satisfactory of two-speed gears, the V.S. Copies of both calendar and catalogue will be sent to any readers of *The Motor Cycle* who make application to the above address.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected manuscript, drawings, and photographs will only be returned provided a stamped addressed envelope is enclosed for the purpose.

)UR SIDECAR MOUNT

de now on a new 1909½ two-speed HUMBER and
ONET SIDECAR. The combination equal to a
car. We will quote a special cash price for the com-
tion. Offers considered.



"HUMBER"

st received from makers, a few

1909½ HUMBERS

new. These you can hardly tell from 1910 models,
fitted with improved pattern silencers, spring forks
r pulleys, Roc licensed two-speed gear, H. B. control
tered tank, high tension magnetos, Dunlop tyres, oil
p operated by foot, stand and carrier, toolbag with
ls fitted to handle-bar. Fully guaranteed.
£42 10s., or exchange, or credit.
SPECIAL DISCOUNT FOR CASH.

1909 SINGLE SPEED HUMBERS.

and new, fitted with latest pattern silencers, spring
s, magnetos, pedalling gear, stand, carrier, toolbag,
s, number plates,
£37 15s., exchange or credit.
sh offers wanted. Why buy second-hand machines,
brand new, up-to-date, fully guaranteed machines.
had at these prices. Remember number is limited

Don't Miss These.

1909½ HUMBER two seds, handle starting, com- with new sidecar, £45 only.

5½ h.p. Rex DE LUXE, magneto, Roc clutch, han dle starting, complete with sidecar, £22 10s. only.

NEW 1909 ARNOS.

have a few Brand New 3½ h.p. Models, fitted with
netos, h.-b. control, complete with tools, etc.
t price, £45. Our price, £32 10s. Or exchange.
Cash offers wanted.

Other Sidecar Machines.

p. MINERVA, twin, 1908 model, spring forks	£25	10
p. BROWN, twin, 1908, magneto, free engine	£25	10
p. Twin REX, four speeds, spring forks	£16	10
p. Twin REX, 1908, magneto, spring forks..	£32	10
p. HUMBER, 1909, two speeds, soiled only	£32	10
p. BAT, magneto, two speeds, spring frame..	£24	10

Beautiful Solo Mounts.

p. TRIUMPH, magneto, etc., 1909	£35	0
p. TRIUMPH, 1908, Mabon free engine	£30	0
p. TRIUMPH, 1907, in splendid condition ..	£25	0
p. DOUGLAS, 1909, studded tyres, like new	£32	10
p. REX, 1909, tourist, soiled only	£32	10
p. REX, colonial model, magneto ignition ..	£12	12
p. QUADRANT, 1909, Roc two-speed gear..	£32	10
p. QUADRANT, 1908, mag., beautiful order	£25	0
p. MINERVA, mag., enamelled French grey	£22	10
p. MINERVA, magneto, splendid condition..	£21	10
p. N.S.U., magneto, 2¼in. tyres, low built ..	£22	10
p. N.S.U., 1908, magneto, splendid order....	£26	10
p. N.S.U., twin, 1908, magneto, two speeds..	£27	10
p. SPARK, vertical engine, magneto	£8	15
. GARRARD spring forks, 26in. wheels ..	£8	15
p. MINERVA, spray, good running order ..	£3	15

We have 200 Machines in stock.
cannot put all these in our advertisements, therefore
for list, post free. CASH BUYERS we specially
for, and we are able to allow big discounts. TO
TRADE: We have a few good machines to clear
each.

THIS WEEK'S SPICY BARGAIN.

h.p. REX, in good running order, complete with
belt, accumulator, number-plates, etc.
£4 19s. 9d. £4 19s. 9d. £4 19s. 9d.
will reserve machine upon receipt of £1 deposit, and
balance 5/- weekly.

ENGINES.

Motor Boat Engine, two flywheels, fitted with propeller, pump, carburetter, and silencer	£8 10
p. Coronet, M.O.V., water-cooled, new	£7 15
p. De Dion, water-cooled	£5 15
p. Twin Standard, wants overhauling	£2 5
p. New Water-cooled Stationary Engine	£5 15
p. De Dion, air-cooled	£2 5
p., M.O.V., air-cooled	£3 5

Exchanges entertained.

WANTED, up-to-date two or four-seater car, two or four cylinders. Cash or exchange.

BOOTH'S MOTORIES
CHARLES STREET, off Square Road,
Phone 1062. HALIFAX. 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

2¾h.p. Minerva, grand condition, all spares spring forks, accumulator; £12.—Bentley, Sandy Lane, Royton.

3½-4h.p. Motor Cycle for sale, or exchange (also side-car).—Offers and particulars, 3, Archery Terrace, Leeds.

MUST Sell.—2h.p. Humber, chain drive, splendid condition; £10, or near offer—4, Simpson's Place, Rochdale.

PHELON and Moore, 1909, magneto, splendid condition; £40.—F. Craven, Rock Bank, Bolton Rd., Bradford.

1909 T.T. Triumph, absolutely like new, Dunlop tyres, done little work; £38.—Houghton, game dealer, Rotherham.

CROSS for Triumphs in Rotherham.—1910 and 1909 models in stock; exchanges entertained; 2¾h.p. Minerva, £8 8s.

1909 Triumph, Palmer cord tyres, spares, and horn, very little ridden, like new; cash £35.—G. W. Mumby, Berkeley St., Hull.

1909 P. and M., in good condition, spares, inlet and exhaust valves, lamp, and horn; £38 10s.—364 Manchester Rd., Bradford.

3½-4h.p. Ariel, good condition throughout; cost £40 will take £12; satisfaction guaranteed.—Armstrong's Garage, Beverley.

4h.p., Chater frame, Stevens engine, h.b. control; best offer above £8; seen any time.—Hyslop, 31, Henrietta St., Ashton-under-Lyne.

2½h.p. J.A.P. medal holder for hill-climb, all the latest, built last season; £12 10s.—Bourne, Plumber, Millhouses, Sheffield.

TRIUMPH, 1909, nearly new, searchlight, horn, all spares, guaranteed perfect order; what offers?—Lanyon, Infantry Barracks, York.

HALIFAX.—Rex motor cycles, 100 to select from; £5 to £75; special list on application — Motor Exchange, Westgate, Halifax.

MANCHESTER Motorists can obtain Ariel, Bradbury, Douglas, Norton, R.M.C. two-stroke from official agent, Gourlay, Fallowfield.

3½h.p. Rex, magneto, running order, handle-bar control, spring forks; £17, or nearest offer; leaving district.—Hodgson, Market, Knaresborough.

3½h.p. Humber, free engine, French grey, just overhauled, magnificent condition, R.O.M. back; any examination; £9 5s.—27, Alfred St., Oldham.

1909 Triumph, free engine model, in perfect condition, only done about 1,000 miles; £40 cash.—Triumph Agency, 322, Manchester Rd., Bolton.

TRIUMPH Racer, 1909, T.T. model, in perfect condition, only done 1,000 miles, very fast; £38 10s.—R. Thornton, 45, Chester St., Hulme, Manchester.

MINERVA, 2¾h.p., accumulator, new hide belt, tyres good, horn, guaranteed running; any trial here; 10 guineas.—Banfield, 102, Lloyd St., Moss Side, Manchester.

TRIUMPH, 1909, left works July, ridden part August and September, practically new, F.R.S. lamp, trinote horn, accessories, guaranteed perfect; £39.—Illingworth, Morley.

3½h.p. Futoir, Chater, new wheels, tyres, Michelin tank, "Triumph Patt." low model, and fast good condition; offers, or exchange lightweight.—219 Whitegate Drive, Blackpool, Lancashire.

TRIUMPHS, immediate delivery, come and see me before purchasing your 1910 mount, any make supplied; second-hand Triumphs taken in part payment.—Triumph Agent, 53, Trafford Rd., Salford.

3½h.p. Magneto Triumph, late 1907, perfect condition, wheels newly plated, new cylinder fitted, Triumph adjustable pulley, newest pattern footrests, N.A.B. spring seat-pillar, new Miller's lamp and generator, horn, tools, spares, complete, fast, and reliable; £27; seen any time.—H. Chadwick, 35, Lower Bank Rd., Fulwood, Preston.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

3½h.p., Auto engine, 6 Chater-Lea, perfect condition; £15.—Campbell, Johnstown, Ruabon.

TRIUMPH, 1909, first-class condition, non-skid tyres; trial; 33 guineas.—Moss, Wem.

1½h.p. Quadrant, in excellent running order, new belt, tyre; £8.—P. Irwin, Wyelands, Buxton.

1908 2¾h.p. Bradbury, a genuine, hard wearing machine, in perfect condition; £12.—Hough, Leamore, Walsall.

DOUGLAS, July, 1909, Palmer cords, Watawata, splendid equipment; ride purchaser; £33, nearest.—Sugden, Douglas Agent, Alfreton.

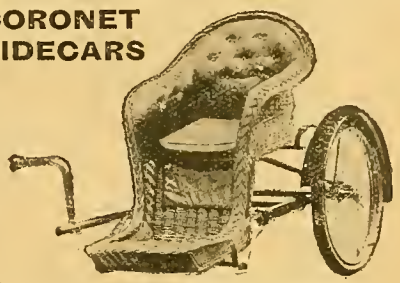
TRIUMPH, 1909, free engine clutch, Palmer cord tyres, every part perfect, Lucas lamp, horn; £39.—Gorton, 46, Darlington St., Wolverhampton.

TRIUMPH, new January, 1909, splendid condition rubber studded tyres, complete with all accessories; £29.—Benham, Holywell Terrace, Shrewsbury.

THE LEADING HOUSE.

Large Stocks. Immediate Delivery. Money Saved.

£4 17s. 6d. CORONET SIDECARS



Before buying a Sidecar, send for illustrated circular explaining the advantages of "CORONET" Sidecars over other makes. Delivery from stock to suit Minervas, Rexes, N.S.U.'s, Triumphs, and any other make. Attached in three minutes.

Price £4 17s. 6d. Discount to trade.

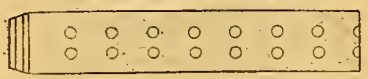
CORONET ADJUSTABLE PULLEY.

12/6

The best variable speed pulley on the market. Loose flange securely held in any position by a simple yet ingenious contrivance. Gear can be altered without the aid of spanners, lock ring easily operated by hand. Buy a "Coronet" pulley and gear your machine suitable for hill-climbing.

Standard makes, such as Rexes, Triumphs, Minervas, supplied without the necessity of sending old pulley for pattern. **Discount to trade.**

"GRIPSKIN" BELTING.



Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

⅝in., **10d.**; ¾in., **11d.**; ⅞in., **1/1**; 1in., **1/2.**

Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

NEW DUNLOP AND CLINCHER COVERS.

24 or 26 or 28×2in.	17/-
24 or 26 or 28 x 2¼	17/6
24 or 26 or 28×2¼in.	18/-
Clincher Tubes, all sizes ..... each	4/11
28×2 or 2¼in. Dunlop Wired Covers ..... „	11/6
24×2¼in. Clipper-Reflex Beaded Covers .... „	14/6

Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from 59/6. Your old coil and acc. taken in exchange.

CARBURETTERS.

BROWN AND BARLOW. AMAC.

Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters. Be up to date. Price reasonable.

MISCELLANEOUS.

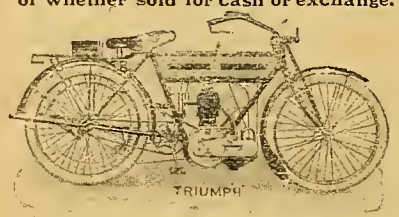
De Dion Car Frame, wheels, differential	£3 10s.
Jack No Skid, cost 30/-	10/6
Six good Plain Coils ..... each	3/3
Dozen good Trembler Coil ..... each	7/6
Mudguards and Stays 3in., 2/11, 4in.,	3/6
Silent Silencers for engines to 5 h.p.	3/3
Long Handle-bars, well plated ..... 5/6 and	6/6
500 Fuller Midget Trembler Coils	17/6
200 Fuller Plain Coils (your old coil taken in exchange)	10/6
250 Mirror Lens Lamps, with generators	14/9
50 Pairs New X'lall Spring Forks, latest	15/-
Longuemare, Minerva, F.N. carburetters .... each	5/6
Osborne Four-speed Gear, fit Rex	35/-
Albion Free Engine Clutch, fit Rex	29/-
Mabon Free Engine Clutch, fit Triumph	39/-
Good Forecarriage, complete, with tyres.....	£2 19s.
Light Car Frame, with springs and wheels	£2 10s.
Norman Two-speed Gear, nearly new	£2 5s.
New Ideal Ball Bearing Fan	12/6
New Amac Carburetter, handle-bar control	17/6
Second-hand pair XL'All or Matchless Spring Forks	9/6
De Dion Two-speed Gear Box, nearly new	£2 5s.
Low tension Magneto suit car	27/6
Trembler Coil, twin cylinder	12/6

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), HALIFAX.
Telephone 1062.

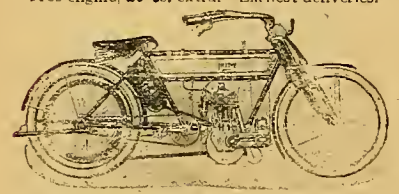
MAUDES' MOTOR MART

HALIFAX AND LONDON

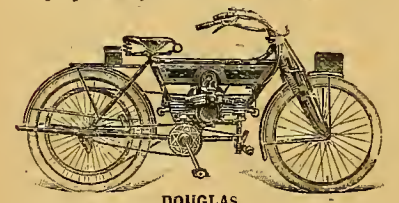
Sole Yorkshire Agents for the T.A.C. Motor Cycle de Luxe
Sole London Agents for the NORTON.
Sole Halifax Agents for TRIUMPHS, DOUGLAS, PHELON MOORES, BRADBURYS, etc., etc.
Every 1910 model we sell or offer for sale carries the makers' full guarantee regardless of whether sold for cash or exchange.



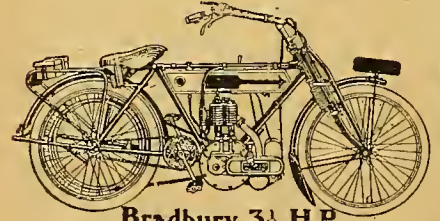
1910 TRIUMPH.
Standard model £43 15
Tourist Trophy model £50 0
Free engine, £6 6s. extra. Earliest deliveries.



NORTON.
3½ h.p. single cylinder .. .. 43 gns.
4½ h.p. single cylinder .. .. 45 „
5 h.p. twin cylinder .. .. .. 53 „



DOUGLAS.
Model B.. .. .. 36 gns
Model C.. .. .. 38 „



Bradbury 3½ H.P.
1910 Standard model £46 0
Delivery from Stock.

T.A.C. Motor Cycle de Luxe.
Standard model .. .. 60 gns.
Wheel-steering .. .. 63 „
Wheel-steering de Luxe .. .. 70 „
Discount to cash buyers.

HUMBER
1910 3½ h.p. two-speed £50 0
1910 3½ h.p. Standard £45 0
Twin Premier 3½ h.p., maker's price 50 gns. Our price £48

LISTS POST FREE FROM

MAUDES' MOTOR MART,
Powell Street, HALIFAX.
'Phone: 433. Telegrams: "Petrol, Halifax."
136, Great Portland Street, LONDON, W.
'Phone: 552, Mayfair. Telegrams: "Abdicate, London."

MOTOR BICYCLES FOR SALE.

MINERVA. 3½h.p., late 1908 machine, magneto, back tyre new (studded), adjustable pulley, Whittle belt, B. and B. carburetter, torpedo tank; £24.—Grant, Bull Ring, Ludlow.

TWO 1909 3½h.p. Minervas, spring forks, magneto, in very good condition, £30 each; one 1909 3½h.p. Triumph, spring forks, magneto, splendid condition, £35; one 1909 3½h.p. Humber, two-speed gear, spring forks, magneto, a bargain, £35.—Allen Bros., 75, Wellington Rd. South, Stockport.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

TRIUMPH, 1909, in perfect condition, and as new, little used; £35.—Geo. Sharman, Brackley.

1909 4-cyl. 5-6h.p. F.N., not run 500 miles, and equal to new; £38.—1, Stratford Terrace, Nottingham.

TRIUMPHS.—One 1907, one 1909, both excellent condition.—Apply, Tuck, 4, Grantham St., Coventry.

TWIN Rex, in grand condition, new tyres, Whittle belt; £16.—50, Ronald Rd., Bordesley Green, Birmingham.

3½h.p. 1909 Rex, R.O.M., and tube, spare tyre, valve, lamp, horn, equal new; £30.—Marris, Cromwell Rd., Grimsby.

TRIUMPH, 1909, all accessories, scarcely soiled; £35, nearest offer accepted.—Trelawney, King Edward Rd., Coventry.

2¾h.p. Kerry, 26in. wheels, low built, fast, reliable, long bars, splendid condition; £8 10s.—67, Southgate, Sleaford.

TRIUMPH, late 1908, splendid condition, new Palmer cord tyres, spares; £32.—C. W. Blythe, 17, Market Place, Coventry.

£10.—1907 Ariel, H.B. control, Palmer cords, two petrol tanks, spring forks, padded seat.—Myhill, 38, Whitmore Rd., Birmingham.

1909 3½h.p. Rex, first-class condition, new Shamrock belt, rubber non-skid tyre; £26; spares, tools.—Lloyd, Victoria Terrace, Leamington.

2½h.p. Rex Lightweight (1908), Bosch magneto, guaranteed perfect, little used; trial here; £16 10s.—Taylor Bros., Stirchley, Birmingham.

3½h.p. White and Poppe, B.S.A., 1908, low, powerful, Palmer studded, green and gold, as new, £18; leather coat, 15s.—Hatfield, Edenbam, Bourne.

1909 Rex, 3½h.p., condition as new, complete with horn, spare valve and all tools, very fast, grand hill-climber; bargain, £30.—B. S. Gorton, Dudley Lodge, Coventry.

1909 Royal Model A. Wolf Lightweight Motor Cycle, 2in tyres Whittle belt, two accumulators, spring stand, carrier; buying higher power; £15.—Mogg, Forest Rd., Bulwell.

DOUGLAS, 1910 model, three weeks old, with horn, spares, and registration; agent's trial machine; bona-fide reason for selling; £38 10s.—Priest and Co., 66, Bishop St., Birmingham.

1909 Douglas Lightweight, condition absolutely as new, not done 700 miles, fitted self-sealing tubes, rubber studded rear tyre, horn, tools, and spares; £28 10s.; owner bought 1910.—Warner, Warwick.

3½h.p. Motor Cycle, Chater-Lea frame; 2½h.p. motor cycle, Fafnir engine; 1¾h.p. Clarendon motor cycle; motor cycle engine, and lot of sundries; £15 the lot, worth double.—J. Stimpson, Broad Walk, Stratford-on-Avon.

POUNDS Saved.—Lowest quotations given on all makes of motor cycles and accessories, second-hand at broker's prices; exchanges; prompt deliveries.—Write us your requirements to Midland Direct Agency Co., Leamington.

IVAN B. HART DAVIES wishes to sell his End-to-end Triumph, 85 by 88 engine, two gallon tank, recoil handle-bars, spare butt-ended tube, all tools and spares, lamp, horn, etc., run 2,000 miles, as good as new; £40 cash.—Apply, I. B. Hart-Davies, Bank St., Rugby

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

5-6h.p. Twin Chase, Chater-Lea spring forks, B. and B. handle-bar control; in perfect order; sacrifice £13 10s.—37, Searle St., Chesterton, Cambridge.

4-CYL. F.N., in perfect condition, late 1908, numerous spares; any trial allowed; cost £55, accept £30 cash, or exchange good twin J.A.P.—Young, Barrowfield Fordham.

SECTION VI.
Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

1908 Triumph, just overhauled, new engine, etc., fine order, tyres as new; £30.—Davies, Western Rd., Hagley, near Stourbridge.

3½h.p. Rex Motor Cycle, 50-guinea model, recently overhauled, in excellent condition, lamps, separate generator, stand, carrier, tools; £16.—Walker, 130, Worcester St., Stourbridge.

MAUDES' MOTOR MAR

HALIFAX AND LONDON

List of good Second-hand Motor Cycles for immediate disposal.

Cash, Exchange, or Deferred Paymen Good allowances on Push Cycles.

510 **REX DE LUXE,** 1908 model, 3½ h.p., Bosch magneto, spring forks, Cantilever seat, 26 x 2¼in. Palmers, two speeds, Roc clutch, handle starting. An exceptional bargain .....
514 **BROWN** 2¾ h.p., magneto, spring forks, handle-bar control, Palmers, fine running order. Will clear at .....
423 **CLYDE** 2¾ h.p., vertical engine, Bosch magneto, M.O.V., B. and B. carburetter .....
112 **SINGER** 3 h.p., vertical engine, magneto, late model, Continentals, handle-bar control .....
555 **TRIUMPH** 4 h.p., J.A.P. engine, B100 saddle, Bosch magneto, Longuemare carburetter .....
520 **TRIUMPH** 3½ h.p., brand new, 1909 model, fully guaranteed. What offers?
561 **MINERVA,** 1909 model, 3½ h.p., magneto, Minerva spring forks, like new .....
550 **LINCOLN ELK** 3 h.p., Palmers, 1908 model, very low built. A bargain .....
424 **MINERVA** 3½ h.p., vertical engine, B. and B. carburetter, M.O.V., free-engine clutch, very fine order .....
290 **ZENITH** Bicar, Fafnir engine sprung frame, two speeds, handle starting, B100/4 saddle, very fine order .....
232 **KERRY** 5 h.p., twin girder forks, low built, 26in. wheels, very good condition .....
565 **PHŒNIX** Car, two-seater, Fafnir 8 h.p. two-cylinder engine, two speeds and reverse, just been overhauled .....

MACHINES in Stock at HALIFAX.

N.S.U. 3½ h.p., brand new, magneto ignition, Peter Union tyres, two brakes, all improvements ....
BRADBURY 3½ h.p., 1910 model, Druid spring forks, magneto ignition, standard throughout .....
N.S.U. 5½ h.p. Twin, Peter Union tyres, brand new, magneto, etc., all improvements .....
MOTO-REVE 2 h.p., magneto ignition, spray carburetter, h.b. control, spring forks, Continental tyres, etc. .....
MINERVA 4½ h.p. Twin, B. and B. h.b. control carburetter, 26in. wheels, machine in splendid condition .....
N.S.U. 3½ h.p., 1908, 2½in. tyres, spring forks, variable pulley, good tyres, etc., etc. .....
HAMILTON 4 h.p., Amac h.b. control carburetter, long handle-bars, 26in. wheels, A1 condition throughout .....
TRIUMPH 3 h.p., spring forks, h.b. Amac control carburetter, good tyres, two brakes, etc. .....
SINGER 3 h.p., Phelon and Moore two-speed gear, Druid spring forks, Brooks B100 saddle, handle-bar control, magneto ignition .....
N.S.U. 3½ h.p., Roc two-speed gear, 26 x 2¼in. tyres, spring forks, etc. .....
REX 2½ h.p. Lightweight, magneto ignition, Amac carburetter, good tyres, standard specification, and 1908 model .....
QUADRANT 3½ h.p., accumulator ignition, Longuemare carburetter, Whittle's belt, spring forks, Lycett's saddle .....

All subject to being unsold.
Any machine reserved for fourteen days against dep of 20/-

N.S.U. MOTOR CYCLES. N.S.U

We have still a few N.S.U.'s to clear at exception low prices, as below—

	Cash.	Deferred Payments.	List Prices.
3 h.p.	£25	—	£39
3½ h.p.	£31	£33	£42
5½ h.p.	£37	£39	£52

All brand new and perfect, and fitted with Magne ignition.
Fullest particulars upon request.
Send for our lists of **Accessories and of Second-h Motor Cycles.** We can almost guarantee to save money.

£5 and your push cycle secures:
Humber 2¾ h.p. **Quadrant** 2¾ h.p.
Minerva 2¾ h.p. **Minerva** 2½ h.p.
Bradbury 2 h.p. **Minerva** 2 h.p.
Subject to cycle being in good condition.

MAUDES' MOTOR MART

Powell Street, Halifax.
'Phone, 433. Telegrams, "Petrol, Halifax."
136, GREAT PORTLAND ST., LONDON, W
'Phone, 552 Mayfair. Telegrams, "Abdicate, Lond

TOR BICYCLES FOR SAL

J.A.P., Chater-Lea frame, French grey, perfect condition. Amac handle control, adjustable pul- low, long handles, footrests, new accumulator, tals; £10.—66, Bath Rd., Worcester.

SECTION VII.

ster, Oxford, Buckingham, Berks, s, and Hants, and Channel Islands.

RS for fair dealing in second-hand motor bikes; ge stock from £5 upwards. List free.—Below.

RS, Holywell, Oxford, for new and second-hand tor bikes; 1910 Triumphs and Douglas's from machines bought, sold, or exchanged.

Humber, good condition, perfect running order; 6 10s., lowest.—Harris, 12, Clarence Rd., Bristol.

Chater-Lea, low, Dunlops, 1910 carburetter, handle-bar control; bargain, £10.—8, Medgbury Swindon.

ER-LEA-NOBLE, 2½h.p.; £9, or offers. — V. Meric, Trimulgherry, Winchester Rd., East-

MPH, 3½h.p., late 1908, pedalless, good condi- n; £28.—H. W. Hosking, University College,

S and Eyles, opposite Town Hall, Oxford.—1910 nier motor cycles, twins and singles, in stock;

Motor Cycle, 3h.p. De Dion engine, tyres, etc., good order, low, fast; £9 10s. — Heybourn, Maidenhead.

Rex Luxe, 1908½, free engine, clutch, magneto, gnificent machine; sacrifice £26.—Stanley Gal- h Wycombe.

ING.—1909 Triumph, in perfect condition, new t and back tyre, only done 5,000 miles; £36. 40, Friar St.

SPEED Bradbury, 3½h.p., new July, 1909, not one 750 miles; £40.—Laverton, 7, Grand Av., uthbourne, Hants.

late 1907), 3½-4h.p., magneto, Continentals, climb rthing, very little used, as new; £25.—H. Naseby, n, Clanfield, Oxon.

3½h.p. Peugeot, Bosch magneto, h.b. control, Advance pulley, very low, condition perfect; £18. 6, 82, High St., Cheltenham.

OSACOCHES (accumulator), late 1908, spring ks, perfect; £17, or good make pedal bicycle part exchange.—Dr. Burd, Upton-on-Severn.

N.S.U., magneto, spring forks, two speeds, free ngine, headlight, horn, tools, spares; etc., good achine, and equal to new; best offer over £20.— 16, Winchester St., Basingstoke.

3½h.p., magneto, 1908½, steel studded back, Amac carburetter, beautiful condition, little used, es, stand, carrier, etc., spare belt and Continental 25, offer.—No. 3,830, *The Motor Cycle* Offices,

SECTION VIII.

d, Essex, Middlesex, Surrey, Kent, Sussex.

Wolf, splendid condition; £12.—Clements, 39, ere Rd., Brighton.

3½h.p., Tourist Model, latest, perfect condition; 1.—2, Harleyford St., Oval Station.

MPH, magneto, also sidecar; ready cash.—Sum- 84, Aylmer Rd., Shepherd's Bush.

Rex, trembler, surface, low, comfortable, and peedy; £6 15s.—65, Crouch Hill, N.

MPH, 3½h.p., magneto, h.b. control, like new; 5.—1, George Rd., Maldon, Surrey.

MPH, 1910, delivery now from stock; £48 15s.— steiana, 523, High Rd., Chiswick.

Brown, in splendid order; only £12.—S. W. Dow- lass, 96, Upper Richmond Rd., Putney.

Excelsior, free engine, B. and B., trembler, tyres, w, low, spares.—Dewey, stationer, Sidcup.

Douglas; £37 16s.; 1909 models accepted part ayment.—84, Rodenhurst Rd., Clapham.

MPH, 1909, genuine; further description unneces- y; £34.—Leslie Orrin, Braintree, Essex.

VN, 2¾h.p., order and condition as new; £14.— yne, Railway Cottages, Hayes, Middlesex.

MPH, late 1907, perfect condition; £25. — rsden, 201, Turners Hill, Cheshunt, Herts.

Pebok, in good running order; 7 guineas.—Wade, motorite Warehouse, 84, Queen's Rd., Peckham.

TTLES. — Roc, 1909, 4h.p., M.O.V., magneto, lutch, two speeds, h.b. control, nearly new; £30.

TTLES.—Minerva, 4½h.p., twin, M.O.V., spring forks, runs well, very cheap; £16 16s.

TTLES.—Rex de Luxe, 5-6h.p., twin, magneto, Roc clutch as new, unscratched; £26.

TTLES.—Minerva, 2½h.p., M.O.V., Chater-Lea, perfect; £6 15s.; exchanges entertained. — Motor Exchange, Earlsfield. 'Phone 711 Post, ion.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

Phone, 700. Telegrams: "Perfection."

1910 REXES. Liberal Exchanges.

Deliveries from Stock of all Models.

SIDECAR MACHINES.

1909 5 h.p. TWIN REX, nearly new	£32 10
1908 5 h.p. two-speed REX DE LUXE, NEW	£40 0
1908 Twin Tourist REX, magneto, spring forks	£26 10
1908-9 four-cyl. F.N., fine condition	£25 10
1908 5 h.p. REX DE LUXE, mag., extra good	£29 10
1907 Twin magneto REX, spring forks	£20 0
1907 5½ h.p. Twin REX, spring forks	£16 10
6 h.p. N.S.U., magneto, spring forks, h.b. control	£24 10
7-8 h.p. Twin MINERVA and N.S.U. Sidecar, very smart lot, spring forks	£29 0
Twin WERNER Lightweight, spring forks	£12 10
5½ h.p. REX DE LUXE, Roc clutch	£25 10
6 h.p. Twin ANTOINE, extra good, R.O.M.	£18 10
Twin CLEMENT, spring forks, spray	£9 15

"POPULARS."

1910 Magneto TRIUMPH, 500 miles	£42 15
Brand new 3½ h.p. Magneto TRIUMPH	£43 10
1909 3½ h.p. Magneto REX, nearly new	£32 10
1909 3½ h.p. REX Speed King, as new	£32 10
1909 3½ h.p. two-speed HUMBER, spring forks	£32 10
1908 3½ h.p. Magneto REX, special machine	£24 10
1908 3½ h.p. 2-speed REX DE LUXE	£30 0
1908 3½ h.p. N.S.U., spring forks, as new	£26 10
4 h.p. ROC, magneto, clutch, good, h.b. control	£24 0
4 h.p. ANTOINE, high tension magneto	£18 18
3 h.p. Magneto SIMMS, 2¾in. Palmers	£16 10
3 h.p. SINGER, V belt, h.t. magneto	£16 10
1907 3½ h.p. QUADRANT, spring forks	£16 10

Five 5½ h.p. **TWIN REXES**, spring forks, long bars, low frames, aluminium finish, blue lines, 26in. wheels..... **£16 10**

Exchanges or easy payments.

BARGAINS IN 1909 REXES 1909

1909 3½ h.p. Tourist REX	£35
1909 3½ h.p. REX DE LUXE, two-speed	£45
1909 5 h.p. REX DE LUXE, two-speed	£48

Compare these with 1910 prices.

SPECIAL BARGAINS.

3 h.p. HUMBER, spray, free engine	£10 10
3 h.p. BRADBURY, long and low	£10 0
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. STEVENS, h.b. control, band brake	£13 10
3 h.p. CLYDE, high tension magneto ignition	£14 10
2¾ h.p. KERRY, light and low, spray	£9 10
3½ h.p. REX 22 frame, re-enamelled	£7 10
3 h.p. BEESTON-HUMBER, spray	£9 10
3½ h.p. WERNER, used with passenger	£13 10
2¾ h.p. Light ARIEL, low build	£8 15
2¾ h.p. LLOYDS, vertical, spray	£6 0
2 h.p. F.N. SAROLEA, untested	£4 5

Monster list on application. Cash offers considered.

EASY PAYMENTS.

5/- weekly and reasonable deposit secures any of these machines. All tested and ready for the road:

2¾ h.p. Bradbury	£10 0	2¾ h.p. Kerry	£9 10
3 h.p. Clyde	£15 0	2¾ h.p. Ariel	£9 13
3 h.p. Ariel	£10 0	2¾ h.p. Werner	£8 10
3 h.p. Humber	£10 0	3½ h.p. Werner	£13 10
3½ h.p. Rex	£10 10	2¾ h.p. M.M.C.	£9 10
2½ h.p. Lloyd's	£7 10	2 h.p. Humber	£8 10
3½ h.p. Rover	£14 0	3 h.p. Bradbury	£10 10
2¾ h.p. Minerva	£9 10	3½ h.p. Excelsior	£9 10

MISCELLANEOUS.

New B.&B. carburetter, h.b. control	£1 5 0
New AMAC "	£1 2 6
New large size LYCETT'S motor saddle	£0 9 6
Two-speed chain-drive Tricar, less engine	£4 15 0
28 x 2in. CLIPPER Reflex Cover, beaded, new	£0 17 6
28 x 2¼in. Beaded Edge CLINCHER Cover, new	£0 17 6
New Spring Forks, to fit all REX machines; illustrated pamphlet on application; old forks allowed for	£1 19 6
MONTGOMERY Sidecar, seats two	£4 5 0
New DE LUXE Sidecar, special fittings	£5 17 6
XL-All Spring Forks	£0 9 6
½ h.p. Electric Motor, 110 volts	£1 19 6
New Tyres, all sizes from	£0 12 9
Tubes, with valves	£0 4 11

1910 DE LUXE SIDECARS.

Special detachable fittings, no second adjustment necessary, 26 x 2¼ tyre, art cane or best wicker body, £5 17 6.

Illustrated pamphlet on application.

MOTOR BICYCLES FOR SALE.

HAMPSTEAD.—1909 3½h.p. Triumph, condition like new, with tools, accessories; £50.

HAMPSTEAD.—Triumph, 1909, splendid condition, studded tyres, all accessories; special bargain, £33.

HAMPSTEAD.—Triumph, 3½h.p. late 1907, new tyres, splendid condition, all accessories; £25.

HAMPSTEAD.—Triumph, 1910, from stock; no wait ing; easy payments taken, 5 per cent. extra.

HAMPSTEAD.—Douglas Twin, late 1909, only slop-soiled condition, all accessories; £28.

HAMPSTEAD.—Douglas, 1909, twin, magneto and spring forks, splendid condition; £24 bargain.

HAMPSTEAD.—Douglas, 1910 model C., only run few miles, unscratched; splendid bargain, £33.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; no extra for easy payments.

HAMPSTEAD.—F.N., 4½h.p., late model, splendid condition, all accessories; £22, special bargain.

HAMPSTEAD.—F.N., 4h.p., latest model handle-bar control, condition splendid, with accessories; £24.

HAMPSTEAD.—F.N., 5 to 6h.p., late 1909, 2½ tyres, R.O.M., splendid condition; £29, cost £51.

HAMPSTEAD.—F.N., 4-cyl., brand-new, latest model; £39, with latest improvements.

HAMPSTEAD.—Peugeot, 7-9h.p., late 1909, very low, condition like new; cost £60, take £28 10s.

HAMPSTEAD.—Fafnir, 3½h.p., M.O.V., very low, Chater-Lea frame, all accessories; £13.

HAMPSTEAD.—Minerva, 3½h.p., late 1909, magneto and spring forks handle-bar control; £26.

HAMPSTEAD.—Moto-Reve, new condition, 1909, all accessories, spring fork and magneto; special bargain, £23.

HAMPSTEAD.—Moto-Reve, latest 1909 model, only shop-soiled condition; special bargain, with all accessories, £26.

HAMPSTEAD.—Minerva, 3½h.p., just enamelled grey splendid condition, handle-bar control; £11.

HAMPSTEAD.—Rex, 1908 3½h.p., magneto and spring forks, very low, splendid condition; £17.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indians, Premier, Douglas, Reves, Bradbury, Humber, etc.; exchanges or gradual payments, 5 per cent. extra.—Rey, 5 Heath St. Tel.: 2678 P.O. Hampstead.

SPECIAL Bargain.—4h.p. Aster, ready for tour; only £12.—Weston Cottage, South End Rd., Hampstead.

SAROLEA, 2½h.p., Chater frame, Brooks saddle, Dunlops, and spares; £4 10s.—130, Brixton Rd., S.W.

2¾h.p. Kerry, 26in. wheels, low built, fine condition; £9, or offer.—Anderson, 59, Norfolk Rd., Seven Kings, E.

CLEMENT-GARRARD Lightweight, spring forks, excellent condition; £8 10s.—63, High St., Sutton, Surrey.

1909 Motosacoche, magneto, nearly new; £19 10s.—Box L1,382, *The Motor Cycle* Offices, 20, Tudor St., E.C.

4½h.p. Twin Minerva, perfect order; £18; part exchange cycle.—Ellis, 112, Canbury Park Rd., Kingston.

3½h.p. Minerva, 1909; owner abroad; what offers? This machine is equal to new.—96, Upper Richmond Rd., Putney.

3½h.p. Rex, accumulator ignition, in splendid condition; trial; £7 10s.—Page, 74, East Hill, Dartford, Kent.

MOTOSACOCHE, late model (5927), accumulator, non-skid tyres; sacrifice £14.—White Lodge, 209, Brixton Hill.

F.N. 1¾h.p. Lightweight, magneto, nearly new, unscratched; bargain, £19 19s.—17, Algarve Rd., Wandsworth.

£8.—F.N., 2¾h.p., spring forks, very fast, compression perfect.—58, Fermoy Park Rd., Stroud Green. After 7.

1910 Triumph, free engine model; instant delivery.—128, High Rd., Tottenham. See last week for sundries bargains.

TRIUMPH, 1909, free engine, condition excellent; 38 guineas.—L., 204, High Rd., Wood Green. Tel.: Tottenham, 2027.

£4 15s.—2h.p. Humber, chain drive, Longueuare, going order.—Write, J.F.S., 2a, Morgan Mansions, Holloway Rd., N.

1909 F.N., 5-6h.p., nearly new, all accessories; trial by appointment; £35.—S., Electricity Wks., Taylor's Lane, Willesden.

REX, 3½h.p., low frame, Dunlop, handle-bar control, powerful adjustable pulley, will take sidecar.—Trow Balaam St., Plaistow.

1908 3½h.p. Triumph, with Mills and Fulford sidecar, complete, for £36; only wants seeing.—The Hurst-Brawley Motor Co., 96, Upper Richmond Rd., Put ney.

MOTOR BICYCLES FOR SALE.

3 h.p. Motor Cycle, splendid condition, spring girder forks, Longuemare; £8 15s.; seen running. — 9, Wellesley Gardens, Ilford.

1907 3½h.p. Minerva, only wants seeing, perfect condition; ride 25 miles to purchaser; £15 15s.—88, George St., Croydon.

1¾h.p. Lightweight, engine done 100 miles, round tank, tyres like new; £7, nearest offer; reasons for selling.—262, Hornsey Rd., N.

2¾h.p. De Dion-Bat, Bosch magneto, spring forks, Palmer tyres, fast, good condition; £15.—Hall, Colville Dairy, Talbot Rd., W.

2¾h.p. Advance, good condition, smart machine; £11, or exchange with cash for higher power.—Parker, Frances Place, Dartford Heath.

FAFNIR, 3h.p., very fast, long handle-bars, Palmers, two accumulators, lamp, and all accessories; £12 12s.—Dr. Browne, Waltham Cross.

TRIUMPH, 3½h.p., 1907, magneto, spring forks, Palmer cord, Palmer, splendid condition; £24 10s.—2, Radcliffe Rd., Winchmore Hill, N.

7-9h.p. V.S., two-speed, £50; 4-cyl. 5-6h.p. F.N., run 200 miles, £45; 1909 Triumph, spares, splendid order, £38.—Stedman, Garage, Guildford.

3h.p. Humber, magneto, fast, low, perfect condition, lightweight, or push cycle part exchange; £16; any trial.—Edmunds, Limes Terrace, Weybridge.

MIDGET Bicar, 3½h.p., £15; 3in. Shamrock-Gloria, 10s.; Watawata, 10s.; F.R.S. lamp, 15s.; voltmeter, 5s.—84, Rodenhurst Rd., Clapham.

4h.p. Roc, magneto, free engine, £20; 2h.p. twin Moto-Reve, latest magneto, £20; 3h.p. N.S.U., magneto, smart, £16 10s.—128, High Rd., S. Tottenham.

MUST Sell, going abroad.—Rex, 3½h.p., in splendid condition, all spares; absolute sacrifice, £11 10s., or offer.—H., 109, Montague Rd., Leytonstone.

IF You Want Bargains in second-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet St., London (just off Ludgate Circus).

3½h.p. Peugeot, magneto, B. and B. handle-bar control, Druids, condition excellent, pounds worth spares; £22.—38, Warwick Rd., Bowes Park.

TRIUMPH, 1907, magneto, 1908 cylinder and piston, h.b. control, has been well looked after and carefully driven; £26 cash.—Fenton-Pryke, Braintree.

£4.—First order secures 1¾h.p. Bruneau lightweight, going order, splendid condition; a gift; accumulator ignition.—"Motor," White Lion, Hitchin.

1909 3½h.p. Triumph, run 2,500 miles, perfect order, all tools, accessories; £36.

3½h.p. Triumph, winner quarterly trials, January 31st, ridden by Mr. Whitham, perfect condition, as new; £32 10s.

3½h.p. Rex, 1906, smart machine, good running order, all accessories, new rings; best offer.—Green, 90, New Rd., Croxley Green, Herts.

1910 Triumph, Premier, F.N., and Moto-Reve; instant delivery; best prices in exchange; send particulars.—Batchelor and Co., Clarence St., Kingston.

3½h.p. Trinmph, 1908, in first-class order, like new, extra heavy rubber studded on back wheel; £28, fine bargain.—Pond, 349, West End Lane, London, N.W.

3½h.p. Vindec, magneto, spring forks, perfect, £14; 1¾h.p. Wolf lightweight, only run 100 miles, £17.—Mitchell, 14, High St., Rusthall, near Tunbridge Wells.

HAMPSTEAD for Bargains.—We undertake gradual payments or exchanges.—Address, 5, Heath St. Tel.: 2678 P.O.

REX Featherweight, 2¼h.p., magneto, spring forks, Palmer tyre, Brooks belt, low build, splendid condition; £17 cash.—Motorist, 89, Oxford Rd., Walthamstow.

TRIUMPH, 1909, absolutely perfect, Palmer cord and studded tyres, all tools, numbers, etc., large carrier and pannier bags; £34.—94, Gloucester Rd., Kensington.

TRIUMPH, 3½h.p., magneto, 1907 (bought 1908), in splendid condition, Mabon clutch, Palmers, spring seat, lamp, spares, etc.; £27.—Firth, Cromer House, Gravesend.

BARGAIN.—3½h.p. Stevens, overhead mechanical valves, new condition throughout, taken for debt; no use to owner; £9 15s.—Boot Shop, 97, High St., Putney, S.W.

4½h.p. Clyde, magneto, Palmer cord tyres, single-cyl., perfect running order; £12, or exchange higher power.—C. Shott, 2, Tower Rd., Strawberry Hill, Twickenham.

2h.p. Minerva, M.O.V., low built, Chater-Lea fittings, 26 hy 2 Palmer cord tyres, handle-bar control, perfect condition; £7 15s.—Butler, 22, Rosemont Rd., Acton.

3½h.p. Matchless, Continentals, chain driven, magneto, lamp, and generator, pump, accessories, large carrier; £11, or offer; owner going abroad.—Davis, Highlands Farm, Swanley.

1909 3½h.p. Triumphs.—We have two for sale, in splendid condition; price £38 and £39 respectively, or nearest.—The Hulbert-Bramley Motor Co., 96, Upper Richmond Rd., Putney.

Farrar's Motor Works,

Square Road, HALIFAX.

Telephone 919.

SIDECAR MACHINES.

1908 3½ h.p. TRIUMPH, Roc 2-speed gear	£35	0
1908 Twin REX, magneto, very low	£25	0
1909 5 h.p. Twin REX, fine machine	£32	0
1909 ditto, quite new, unused	£36	0
6 h.p. Twin REX, Roc 2 speeds	£22	0
1909½ Twin REX Racer, lovely goer	£35	0
1909½ 3½ h.p. REX Racer, soiled only	£32	10
6 h.p. Twin REX, magneto, h.b. control	£19	10
6 h.p. Twin REX, spring forks, 26" wheels	£16	10
3½ h.p. VINDEC, magneto, Nala 2 speeds	£19	0

Any of the above fitted with one of our new Sidecars for **£4 17s. 6d.** extra.

SOLO MOUNTS.

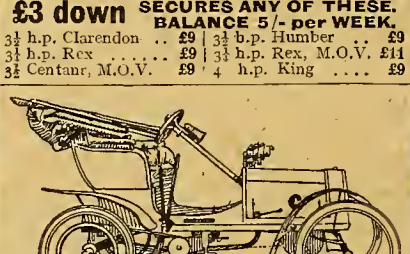
1910 3½ h.p. REX, slightly soiled. Offers wanted.		
1910 3½ h.p. PREMIER, twin-cylinder	50 Gns.	
1909 3½ h.p. REX, R.O.M. tyres	£30	0
1908 3½ h.p. REX, almost like new	£22	0
1908 3½ h.p. GRITZNER, mag., free engine	£18	0
1908 REX Lightweight, fine condition	£17	0
1907 3½ h.p. REX, lovely goer, very smart	£15	15
3½ h.p. N.S.U. magneto ignition	£15	0
3½ h.p. REX, M.O.V. spray	£10	10
3½ h.p. 1906 REX, M.O.V., spring forks	£14	0
¼ h.p. Low REX, M.O.V., h.b. control	£11	0
3½ h.p. REX, Bosch magneto, fine goer	£12	0

LIGHTWEIGHTS.

1908 N.S.U. Lightweight, Bosch magneto	£17	0
1909 MOTOSACOCHE, soiled only	£24	0
1908 REX Featherweight, magneto	£18	0
Twin-cylinder FAIRY, very smart	£14	0

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Clarendon	£9	3½ h.p. Humber	£9
3½ h.p. Rex	£9	3½ h.p. Rex, M.O.V.	£11
3½ Centaur, M.O.V.	£9	4 h.p. King	£9



5½ h.p. O.T.A.V. VOITURETTES, complete with hood, lamps, tools, and spares, £60 each. Magneto ignition, £5 extra.

FARRAR'S HALIFAX SIDECARS.

£4 17s. 6d., complete with best tyres. Guaranteed 12 months. An ideal winter attachment, quite rigid. Good, stylish, and comfortable. No side-slip. Beautifully sprung on double C spring. Approval anywhere. Send for descriptive circular. Don't buy until you have seen ours.

For a few days we will accept your old sidecar or trailer in part payment.

ONE ONLY.

50/- secures a 2 h.p. CENTURY Motor Cycle, complete and in running order.

ACCESSORIES, ETC. Get my Lists. **Pounds Saved.**

	s.	d.
2 h.p. Standard Engine	20	0
2½ h.p. Standard Engine	27	6
6 h.p. Water-cooled Engine	99	0
2½ h.p. Standard Engine	35	0
2½ h.p. Monarch Engine	35	0
Osborne Free Engine, fits Rex	17	6
Mabon Free Engine, handle starting	39	0
'XL-ALL spring forks, per pair	9	0
Clincher Rubber-studded Covers, 26 x 2¼	29	0
Few ditto Dreadnought, cheap.		
26 x 2¼ Lomax Detachable Non-skids, new	15	0
28 x 2 or 2¼ Dunlop Wired Covers	11	6
Motor Cycle Bags, shop soiled, each	2	6
"Hella" Gas Lamps with separate generator	14	6
"Camel" V Belting, ¾in. or 1in., per foot	1	3
Latest pattern Plated Handle-bars, drop ends	5	6
Three-note "Fanfare" Horns, very penetrating	7	6
Minerva, Longuemare, F.N., and N.S.U. Carburetters	5	0
Clincher Tubes, all sizes, with valves	4	11
1910 Brown ane Barlow Carburetters, h.b. control	28	0
1909 Amac Carburetters, h.b. control	19	6
Forecar Attachment, 26in. wheels	80	0
Premier High-tension Magneto, new	59	6
Bosch High-tension Magneto, 1910, new	75	0
Loop Frame for vertical engine	30	0

MOTOR BICYCLES FOR SA

£20 buys a new 3½h.p. Peugeot, in Chater frame, bar control, Shamrock tyres, brand new, B105 saddle, painted French grey, very low built son Harvey, High Rd., Woodford.

MOTOR Cycle, low, tyres unscratched, two lators, two belts, Longuemare carburette hoards, complete, less engine and pedalling gear Soames, 62, Belmore Rd., Easthourne.

4½h.p. Minerva, B. and B., Palmer cords, forks, winner Jarrott and M.C.C. Challeng perfect condition; £26; R.O.M. synchronised 10s., new.—66, London Rd., Twickenham.

REX, 3½h.p., late 1908, magneto, 1909 Amac rettcr, never done any winter riding, condit appearance like new; first reasonable offer acc Burnell, Ryde House School, Ripley, Surrey.

APPROVAL.—No. 6 Chater-Lea, low built, be spring forks, Palmer tyres, Mabon clutch, thing as new, 2¾h.p. engine; cost £50, take £15, offer; immediate sale.—11, Winterwell Rd., Bri

2¼h.p. Peugeot, vertical engine, 26 wheels, ne cover, long handle-bars, low position, most new spare tube, Longuemare carburetter, lamp toolbag; sacrifice £8.—12, Market Sq., Horsham,

3¾h.p. Premier, twin, new October, 1909, been ridden 300 miles; cost 50 guineas; horn, lamp, etc., condition as new; must sell; guineas.—Apply, 4,042, *The Motor Cycle* Office entry.

1909 Free Engine Triumph, new September 1,500 miles, Cowey speedometer, Lucas lar horn, spring pillar, three toolbags, mirror, switch tube, guaranteed perfect; £44; buying car.—I Woodcote, Epsom.

1910 Indian, twin, almost new, delivered De last only, and guaranteed absolutely must realise, and £46 buys it; exceptional oppo for immediate cash only.—Indiano, 110, Clonmo Southfields, S.W.

1909 8h.p. Minerva, M.O.V., Bosch magnet able pulley, new belt, spring forks, Autolo handle-bar control, Palmer cords, Riches tubes, tured, perfect condition; cost £55, lowest £35.— 12, Beresford Sq., Woolwich.

V.S., 5h.p., twin, equal to new, Bosch magneto, forks, R.O.M. tyre, Whittle belt, V.S. two-spe gear, with free engine and Millford castor wheel two head lamps, and spares; £43 10s.; any trial.— and Co., High St., Acton.

3½h.p. Kerry, vertical engine, 26 wheels, almo Palmer cord covers, long handle-bars, lo tion, spring forks, footboards, fine sidecar machine horn, toolbag, coat and leggings included; sacrifi —12 Market Sq., Horsham, Sussex.

1909 Tourist Trophy Triumph, two back whee handle-bars, £5 5s.; speedometer, one new one used, spare belt, valves, tools, lamp, Parsor skid, watch, cost nearly £70, £24, or less spares 30, Smith's Terrace, King's Rd., S.W.

4½h.p. Twin Minerva, h.b. control, 2½ tyres, M butted tubes, nearly new, adjustable pulley, forks, fast and powerful, in perfect condition, spares and tools; must sell; £16 cash.—Custin Oxford Gardens, Notting Hill, W.

PREMIER 1910 Twin, magneto, not ridden 50 selling through no fault, must realise ca ceptional opportunity of acquiring an absolutely machine immediately at sacrifice price of £45.— or call, 110, Clonmore St., Southfields, S.W.

BARGAIN.—Really powerful machine, L. and gine, long bars, low saddle position, M.O.V. hoards, absolutely new detachable Browkin tube covers, fine running order, excellent hill-climbe 15s., or nearest offer; must sell.—W.H., 8, Lust Rd., Harlesden, N.W.

RIDES like an Armchair.—Wanted, purchas Onaway 5h.p. twin (side by side), Bercley two-speed and free engine, handle-bar control, com spring seat, spring forks, spring footboards, guar perfect condition. Continental tyres.—Box L1.38 *Motor Cycle* Offices, 20, Tudor St., E.C.

VINDEC Special, twin, Tourist Trophy machine speedy, must be cleared, best offer over £2 umph, 1908, condition unscratched, best offer ove Rex, 3½h.p., handle-bar control, B. and B. carb perfect going order, best offer over £10; Triumph fine order, £30.—Anglo-Saxon, 31, Newgate St., C

8h.p. Minerva, £25; 4½h.p. Minerva, £20; for fit either machine, 90s.; 2¾h.p. Minerva, £ h.p. magneto F.N. lightweight, £20; Motosacoche Rover forecar, £18; 3h.p. Quadrant, vertical spring forks, low frame, £12; 8h.p. Buchet pacing £35; sidecar, £4.—Seen at, or further particular The Cripps Cycle and Motor Co., 24-28, Woodfor Forest Gate, London, E. Tel.: 75 Stratford.

SECTION IX.

Somerset, Devon, Dorset, and Cornwal

TRIUMPH and Motosacoche, 1910 models in eash, exchange, deferred payments.—Dan Weymouth.

3¼h.p. Rex, M.O.V., spring forks, 22in. frame guemare, good running order; £9.—Uren, ber, St. Ives, Cornwall.

TRIUMPH, 1910; model, free engine, for imm delivery; £55.—Sole agent for Exeter and d —Williams, Motor Engineer, Exeter.

)TOR BICYCLES FOR SALE.
SECTION X.

)nd.

Wolf, Palmers; £15 10s.; exchange old motor push and cash.—Miller, 77, Merry St., Mother-

) Bradbury, ready delivery, cannot fulfil agreement; sacrifice £5.—4,038, *The Motor Cycle* Coventry.

'MPH, 1908, splendid condition, new Clincher tyres; spares; £30. — Hood, 244, Langside rosshill, Glasgow.

1910, two-speed, lightweight; immediate delivery om stock; catalogues post free.—Rossleigh, Ltd., andwick Place, Edinburgh.

'MPHS, 1910 standard, or free engine models; mediate delivery from stock; catalogues post free. eigh, Ltd., 32, Shandwick Place, Edinburgh.

8-9h.p. Bat. magneto, spring frame and fork, new res, new belt, all spares, splendid condition; above o immediate purchaser.—Box L1,349. *The Motor*)ffices, 20, Tudor St., E.C.

'LAND'S Largest Motor Cycle Firm.—Rex, V.S., Indian, Moto-Reve, Phelon and Moore, Zenith, s, Roc, Griffon; we stock all these, and can supply ier make.—Alexander's Motor Exchange, Lothian linburgh.

' Triumph, 3½h.p., magneto, absolutely reliable, B. nd B. handle-bar control, new unpuncturable Shamscelsior studded cover, and ditto best quality tube on back, good Clincher front, Camel belt, two valves, and almost new S.G. belt, horn, tools, ; 26.—Robinson, 153, Oxford St., Glasgow.

TRICARS FOR SALE.

). Rex Light Tricar, good order; £12.—785, High Rd., Leytonstone.

Antoine Tricar, open, wheel steering, tyres new; £16.—147, High Rd., Wood Green.

4½h.p. Air-cooled Tricar for sale.—Particulars, ply, Hudd, 44, St. James's Rd., Bermondsey, S.E.

). Tricar, clutch, strongly built, almost new condition; offers, or part exchange cycle.—Hitchtures, Suffolk.

Twin, Maben clutch, very powerful, footboards; plendid bargain, £15 10s., or exchange.—Townsend, alston Lane.

). Riley Coach-built Tricar, two speeds, free engine, steel studded back tyre, everything as new; £25. Mount Cae, Chingford.

). Humber, coach-built, two-speed gear, excellent condition; £27; motor cycle part payment. — on, 46, High St., Paisley.

). Riley, water-cooled, coach-built, free engine, two speeds, chain drive, pump circulation, lamps, n; £25.—408, Lincoln Rd., Peterborough.

Tricar, with £12 worth of extras, painted grey, r tyres, new, recently delivered.—Can be seen at pe's, Shoe Lane, E.C. £80, cost over £90; reproduced.

5h.p. water-cooled De Dion, two-speed, Rexette coach body, good front tyres, steel studded back, order; reason disposal; offers. — Schoolmaster, , Northampton.

. 3-seater Tricar, two speeds, reverse, splendid conion, car tyres, steel studded back; £35; take ycle, with or without sidecar, and cash, or offers. n, Mill St., Cannock.

Rex Triotte, twin, 1909, new Whitsuntide, £10 rth extras, all spares, splendid condition; best er £45 secures. 2¾h.p. Humber, £5.—" Ravenqueen's Rd., Doncaster.

Quadrant Carette, dual ignition, two Bosch magtos, Lithanode accumulator, coil, tyres perfect, ose lamps, etc.; £25 or first fair offer; photo.— estfield, Ashington, Northumberland.

. Advance, splendid condition, coach-built, open ime, wheel steering, two-speed and free; £28; ycle and sidecar considered; seen by appointment 2, Burnsfield Av., Wimbledon Park, S.W.

Sale, 6h.p. 1908 Rex Litette, in good condition, in car tyres, in excellent condition, tools, all trial and expert examination allowed; £35.—Aput Best, R.N., Whale Island, Portsmouth.

ER Light Tricar, 3½h.p., fan-cooled, Roc two-eed gear, handle starting, magneto, tyres new, spares, excellent condition; £20.—Apply, Brisgarage, or Owner, 21, Lansdowne Rd., Bedford.

Wolf, chain drive, two-speed, free engine, water-oled, bucket seat, car back wheel, 650 by 65, climb anywhere, handle starting; trials; perfect; st £110.—Bullus, 28, Manchester Rd., Bradford.

). Coach-built Phœnix Trimo, magneto, two speeds, chain drive, free engine, footbrakes, new on back, spares and tools; owner bought car; ell; no room. Lake £23.—Lavington & Bedford arnet.

ER, 6h.p., twin-cyl., water-cooled, three speeds nd reverse, four lamps, watch, mirror, heavy car ll tools and every possible spare, driving coat, us improvements, and perfect condition throughout, 45.—Williams, 8, Lansdowne Terrace, Hampton Kingston.

Collier's Motories,

37, Park Cross Street,

LEEDS

(facing Town Hall),

OFFER THE FOLLOWING, ALL READY TO DRIVE AWAY AT A FEW MOMENTS' NOTICE.

Brand New 1910 TRIUMPH, 3½ h.p., with all the latest improvements, a bargain for spot cash, delivery now £45 10

Brand New 1909 TRIUMPH, 3½ h.p., a decided acquisition at £44 10

Brand New 1909 TWIN REX DE LUXE, two-speed, magneto, spring forks and seat, Roc clutch, handle starting, non-skid tyres, and the ideal sidecar mount, 5½ h.p. £48 0

Brand New 1909 3½ h.p. REX DE LUXE, as above, take you every where (and bring you back) £45 0

Brand New 1909 3½ h.p. TOURIST REX, five to fifty miles per hour £35 0

Almost New 1910 6 h.p. TWIN N.S.U., two-speed, handle-bar control, spring forks, all the latest, not been ridden 100 miles £49 10

1909 TWIN REX DE LUXE, two-speed, Roc clutch with sidecar, second-hand, but practically equal to new, 2¼in. R.S. Clincher Dreadnoughts, 1¾in. belt, and will do 45 m.p.h. with twenty-four stones up; a regular knock-out £47 10

1909 REX SPEED KING, used in last Tourist Trophy, a really fast single, 1910 Amac adjustable jet carburetter £37 10

1909 3½ h.p. Two-speed HUMBER, spring forks, magneto, Roc clutch, 1910 Amac, Dunlops, a machine that will climb £34 10

1909 3½ h.p. TOURIST REX, another specially good mount, low built, fast, and a model of reliability £33 0

1908 Racing REX, 24in. wheels, exceptionally low, yet comfortable, has done 60 m.p.h. on Brooklands £30 0

1908 5½ h.p. TWIN REX DE LUXE, with Roc clutch, magneto, handle starting, rider sprung front and rear, a good mount for sidecar £29 10

1908 3½ h.p. N.S.U., in really splendid condition, 24in. wheels with good tyres, very cheap at £25 0

1908 TWIN TOURIST REX, 26in. wheels, spring forks easy starter, Bosch magneto, stand and carrier £27 0

1908 Four-cylinder F.N., Bosch magneto spring forks, special mud-shields for all-weather riding, will start at a walk, and pulls like a Loco., 4½ h.p. £26 0

ROC, 4 h.p., vertical engine, h.-b. control, magneto, clutch, rubber-studded tyres to both wheels, very low and good £23 0

1908 MOTOSACOCHE, in splendid order and condition, low, light, and handy, would suit a doctor £22 10

QUADRANT, 3½ h.p., magneto, spring forks, handle-bar control, 26in. wheels, good order and condition, very powerful £21 10

ANTOINE, 4 h.p., magneto, 26in. wheels, low M.O.V., a good machine at a low price £18 0

QUADRANT, 3½ h.p., accumulator, spring forks, in good condition, and runs very well, low, and economical £17 10

RaX TWIN, 5½ h.p., spring forks, good compression, good general condition, a very powerful machine, suitable for sidecar work, at a decidedly low price £16 10

ARIEL, 3½ h.p., vertical engine, M.O.V., B. and B., Watawata belt, 26in. wheels, been used with trailer and sidecar, very cheap at £15 10

CLYDE, 3 h.p., magneto (h.t. current), not a new machine, but a good machine at little money £14 15

1906 3½ h.p. REX, low built, spring forks, M.O.V., Longuemare carburetter, long bars, cheap and good, especially at £14 10

HASKARD, 2¾ h.p., easy starter, trembler coil, very flexible engine, and capable of a really good turn of speed, in very good condition £11 0

ALLDAYS, 2½ h.p., vertical, 26in. wheels, good tyres, spring forks, with stand, carrier, and in good working order £11 0

REX, 3½ h.p., the John-o'-Groat's model, 22in. frame, an orphan who requires a good home for £9 10

KERRY, 2½ h.p., 26in. wheels, spray, Palmer tyre, very low and handy, decidedly reasonable at .. £9 10

RALEIGH, 2 h.p., vertical, V belt, spray carburetter, two brakes, as good as a modern lightweight £8 15

QUADRANT, 1¾ h.p., very low, 26in. wheels, coil and accumulator, an easy winner at £7 5

TRIUMPH-MINERVA, one of the old brigade but a real good 'un £5 19

TRICARS FOR SALE.

SINGER Tricar, 9h.p., perfect condition, tyres unpunctured, spare tyre, two spare tubes, quantity of tools and many spares, two headlights and electric tail lamp, large luggage carrier, clock on dash, wheel steering, three speeds forward and reverse; bargain, £45, or offer; trial willingly.—Appointment to Dorman, Preston Barracks, Brighton.

6 h.p. Twin Air-cooled Sarolea Tricar, Simms magneto, Mabon clutch, electric side and rear lamps, acetylene headlight, coach-built forecarriage on C springs, Dunlop tyres, footboards, h.b. control, Binns carburetter, exhaust whistle, all in perfect order, engine new two months ago; sole reason for selling, owner buying car; price £40; photo on application.—Apply, C., 27, Campion Rd., Putney, S.W.

SIDECARS AND FORECARS.

RIGID Wicker Sidecar, left side, upholstered, in perfect condition; £3.—Rance, High St., Chesham.

F.S.L. Sidecars, Hunslet New Rd., Leeds. — Correct distribution of weight is everything in a sidecar.

N.S.U., 6h.p., coach-built, new October, 1909, not ridden 300 miles, unscratched; any examination.—Frisby's, Wells, Som.

SIDECARS, £4 17s.; baskets, springs, fittings; trade supplied.—Middleton and Co., Watson St., Newington Green, London, N.

MILLS-FULFORD Castor Wheel Sidecar; cost £14 14s.; cane body, toolbox under seat; £10, 10s., as new.—Marston, Rock Ferry.

A 12 Guinea Montgomery Flexible Sidecar, almost new condition; cash offers, or exchange; wanted, good lightweight.—55, Lothian Rd., Edinburgh.

MILLS and Fulford Forecarriage Attachment, with side stays and footboards, and lock-up oak toolbox; 50s., lowest.—Browne, Ashley, Market Drayton.

12 Guinea Sidecar, brand new, this year's, built throughout with genuine Chater-Lea fittings; £6 8s.; suit Triumph, P. and M., or Roc.—H. Bert, 9, Gaskell St., London, S.W.

THE One and only Oakleigh sidecar, with five years' guarantee, and built of genuine stamped Chater-Lea fittings, £5; coach-built, £6 10s.—Oakleigh Sidecars, Ltd., 65a, Rosendale Rd., West Dulwich.

SIDECARS, best value in England, fit all motor cycles; prices, £4 15s. and £5 10s., fitting free; second-hands from £3 15s.; send for list from actual maker; established 1882.—C. A. Edgar, 123, Holloway Rd., London, N.

J. DAVIS, Automobile Engineer, Barnsbury Grove, N., begs to inform readers that he is the inventor and sole builder of the protected double-seated sidecar, illustrated recently in *The Motor Cycle*. This sidecar, with tiller steering, is the last word in comfortable motor cycling. Particulars and prices on application.

WHY Buy a Sidecar which is unwieldy and troublesome, when you can get for nearly the same money our Homegaraged sidecar, which never requires detaching from the cycle, and is a better car altogether. Our grade B. sidecar, with one invisible joint, and when turned up horizontally, stands together with cycle in 27½ inches, and we guarantee it as rigid as any sidecar can be. Price £5 7s. 6d.; your own old sidecar converted into Homegaraged for £1 17s. 6d.—Bramson and Co., 5, Farleigh Rd., Stoke Newington, N.

SIDECAR COMBINATIONS.

3½h.p. Motor Cycle, with Mills and Fulford sidecar; any trial; £18, worth £30.—Varney, 40, Angel Lane, Stratford, E.

6 h.p. J.A.P., 1909, Chater cords, very low, nearly new; bargain, £28, lowest; sidecar, £3 10s.—129, High St., Croydon.

COMPLETE Cycle and Sidecarriage combination for sale or exchange; offers and particulars.—3, Archery Terrace, Leeds.

HALIFAX.—De Luxe sidecars, special detachable fittings, best tyres and finish; £5 17s. 6d.; send for illustrated pamphlet.—16, Westgate, Halifax.

3½h.p. Humber with sidecar, detachable, splendid working order, brand new covers; £12 10s., complete.—The Schools, Kilburn Lane, Kensal Green.

PRACTICALLY New, 1909 8h.p. twin Minerva, free engine new coach-built sidecar speedometer, all spares; offers invited.—3a, Bridge St., Cambridge.

BEESTON Humber, 3h.p., free engine, new tyres, £10 10s.; also Oakleigh sidecar 28in. wheel, Palmer tyre, £2 5s.—Can be seen at Lycett's Cycle Works, Lee Green, S.E.

3½h.p. Humber and 12 guinea sidecar, both four months old, free engine, two speeds, rubber studded, take two anywhere, all perfect; cost £60; buying car; trial; detailed particulars.—Medical, Little Wested, Swanley, Kent.

7-9h.p. Twin Peugeot Bike and sidecar, magneto, Chater, Roc two-speed, Continental tyres, plated torpedo tank, Druid forks, very low, enamelled grey, only run 500 miles as new; £48; photo; any trial or examination.—221, Cheltenham Rd., Bristol.

J.A.P., 1910, 7h.p., J.A.P. carburetter, free engine, Bosch magneto, Palmer cords, 2½in., Davison torpedo tanks, Whittle belts, built by Chater-Lea throughout, Chater-Lea spring wheel sidecar, built regardless of expense, not ridden 500 miles, spares cost over £10; ridden anywhere within reason; dealers not entertained; accept £50, cost double; brand new.—Motorist, 247 Sayer St., Elephant and Castle, London.

QUADCARS.

PHŒNIX 6h.p. Twin Quodcar, two speeds, magneto, accessories, excellent condition; £35.—Hallett, Chagford, Devon.

MOTOR TRICYCLES.

£14, or offer.—4½h.p. Ariel tricycle, condition and tyres as new, perfect.—1, Lancaster Rd., Ealing.

3½h.p. Motor Tricycle, good condition, tyres just re-treaded; £6 10s. for quick sale.—Gosnold, draper, Folkestone.

CARS FOR SALE.

8h.p. De Dion, 4-seater, tonneau, equal wheels, two speeds and reverse; £47 10s.—Below.

7-9h.p. Star, 2-cyl., three speeds and reverse, 4-seater; £45.—Below.

10-12h.p. Dennis, 2-seater, magneto, three speeds and reverse, very racy car; 50 guineas.

10-12h.p. Pick, 2-seater, three speeds and reverse, cardan, raked steering, low built; £55.

10-12h.p. 2-cyl. M.M.C., tonneau, three speeds and reverse, powerful touring car, C.C. hood; £47 10s.—Below.

4½h.p. De Dion, just overhauled, to clear, £16; Phœnix quadcar, twin, water-cooled, Fafnir, two speeds and reverse, perfect, £37 10s.; exchanges.—128, High Rd., Tottenham. 'Phone, 1982 Tottenham.

HUMBER Car, 5½h.p., good order; cash bargain, £19 10s.—H. Washington, Middlewich.

6½h.p., 2-cyl., belt drive, leather hood, solids back, running order.—Hitchcock, Bures, Suffolk.

6h.p. Humber, two-speed and reverse, good condition; cheap.—Herman Lacey, Barton-on-Humber.

MODEL CX. Stanley Steam Car, boiler wants repairing; first cheque £10.—W. G. Watson, Bedale.

6h.p. Clement, 2-seater, live axle, pretty little car, goes well; £27 10s.—9, Parkholme Rd., Dalston.

ECLIPSE.—14-16h.p. Darracq, the 1910 speciality; immediate delivery; £225; old car part payment.

ECLIPSE. — 20-32h.p. Darracq, semi-limousine, two ignitions, extremely reliable; £150.

ECLIPSE.—40h.p. Napier, 4-cyl. tonneau, honeycomb radiator; a real gift, £68.

ECLIPSE.—18h.p. Siddeley, side entrance, hood, screen, dual ignition; a gift, £115.

ECLIPSE.—16h.p. Chenard-Walcker, side entrance, Cape hood, two ignitions, noiseless; £115.

ECLIPSE.—14h.p. Star, 4-cyl., M.O.V., side entrance, excellent order; £85.

ECLIPSE.—14h.p. Forman, 4-cyl., M.O.V., side entrance, new condition; bargain, £105.

ECLIPSE.—14h.p. Pritchett and Gold, 4-cyl., steel frame, hood, excellent order; £72 10s.

ECLIPSE.—12h.p. J.P., 2-cyl., long chassis, side entrance, hood, perfect order; £80.

ECLIPSE.—10-12h.p. Gnome landaulet, four seats, splendid order; £87 10s.

ECLIPSE.—6h.p. Siddeley, 2-seater, steel frome, reliable and good; £42.

ECLIPSE.—6h.p. Swift-De Dion, 2-seater, hood, perfect order; £38.

ECLIPSE.—10-12h.p. Star box delivery van, very good order; £60.

ECLIPSE.—8h.p. De Dion, genuine, two speeds, tonneau, in pink of condition; £65.

ECLIPSE.—6h.p. De Dion-Regal, 2-seater, three speeds, very smart; only £31.

ECLIPSE.—6h.p. Quadrant Carette, coach-built, two speeds; £20.

ECLIPSE.—3½h.p. Raleighette tricar, two speeds, water-cooled, splendid order; £20.

ECLIPSE.—5½h.p. Rex Triette, 2-cyl., very fine machine; £20.

ECLIPSE.—Repairs and replacements of every description; trade work a speciality; complete overhauls; let us quote you.—Eclipse Engineering and Motor Co., 255, Earlsfield Rd., Wandsworth. 'Phone, 1135 Putney. Station, Earlsfield, L.S.W.R., 15 minutes from Waterloo.

DE DION, 6½h.p., small car, three speeds, cardan, screen, lamps; £32 10s.—D., 59, Minet Av., Willesden.

JAMES-BROWNE, 25-30h.p., 1906, side entrance, fast, good hire car; £55.—Chauffeur, Cottage, Melbourne Lodge, Ealing.

1908 8-10h.p. Standard, 2-seater, 4-cyl. J.A.P. engine, air-cooled, gate change, three speeds and reverse; £75.—42, Church Rd., Hendon, N.W.

4½h.p. Genuine De Dion Car, carry four, splendid condition, tyres nearly new; £30.—Watson, King Edward VII., Montagu Rd. Edmonton.

12h.p. Darracq throughout, 2 cyls., 4-seater, detachable live axle, 810 by 90 tyres, good; trial; £60; magneto cycle part.—F. Jermy, Leighton Holme, Frimley Green, Surrey.

CAR, 2 or 4-seater, artillerys, tyres nearly new, wheel steering, bonnet at front, three speeds, reverse, complete, less engine; £12 10s.—Bourne, Plumber, Millhouses, Sheffield.

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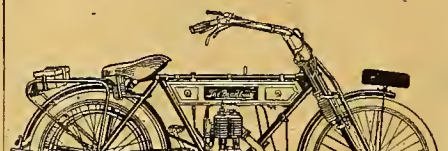

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PALMER.—40-50h.p. De Dietrich, side entrance latest model, fitted hood, screen; £325.

PALMER.—16-20h.p. De Dietrich, 5-seater, mag just re-painted, and ready to go anywhere; £

PALMER.—12-16h.p. Aries, tonneau, genuine engine, fast, reliable, and light car; £75.

PALMER.—15-20h.p. Panhard Chassis, with body, 4-cyl., good running order; £55.

PALMER.—12-14h.p. Humber, tonneau, Moseley fect tyres, very smart car; £65.

PALMER.—9h.p. Jackson, 2-seater, bucket body, eral condition like new; £85.

PALMER.—9h.p. taxicab, latest style, landaulet b seating four inside, very smart; £150.

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PALMER.—16-24h.p. De Dietrich Chassis, late M.O.V., pressed steel frame; bargain, £85.

PALMER.—In stock at Tooting, one monoplane, span, ready to receive engine; £75.

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PALMER.—14-16h.p. 1910 Darracq. I make largest possible allowance for old car; £225.

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PALMER.—All above seen at L. N. Palmer's, Trevelyan Rd., Tooting. Garage one minute Mo Rd. tram terminus, Tooting. 'Phone, 208, Streat Photos, details. Easy terms. Exchanges.

£23.—De Dion, 4½h.p., two speeds, reverse, all tyres, hood, screen, lamps, tools, recently over £60 (just overhauled).—Brown, ironmonger, G Parade, Harringay.

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8h.p. De Dion, 4-seater, Cape hood, adjustable sc Jones speedometer, Dunlops, lamps, etc., in pe condition; £85, or exchange for lightweight motor c —1, Montague Av., Brockley.

CLEMENT-TALBOT, 15h.p., 4-cyl., M.O.V., speeds, tonneau, excellent order, cheap, £95; R smart, 2-seater, 6h.p. De Dion engine, like new, £37 —406, Garratt Lane, Wandsworth.

GENUINE 6h.p. De Dion, 2-seater, Victoria leather hood, head and side lights, toolbox et two speeds and reverse; £60 cash, or consider Triu motor cycle part payment.—Heybourn, Motors, Ma head.

ENGINES.

3½h.p. Minerva Engine, good condition; £5.—W. Victoria St., Manchester.

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3h.p., 3½h.p., new engines, £6 and £7 each; also twin, nearly new, £10.—L.H.O. Motors, Oundl

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3½h.p. De Dion Engine, water-cooled head, with buretter, £4; plain coil, 5s.—Hart, 31, Vaag St., Deptford.

N.S.U., 3½h.p., accumulator ignition, and carbure splendid condition; £5.—Hann, Raleigh L Gowlett Rd., Peckham Rye.

3½h.p. M.M.C. Engine, B. and B. carburetter, ad 3/4 able pulley, all in perfect order; £4 10s.—S builder, Broughton, Preston.

3½h.p. Twin Peugeot, with carburetter, as new, tact breaker, and spares, adjustable pulley; or near offer.—B., 49, Durlston Rd., Kingston-on-Th

5h.p. Alcyon Engine, twin, A.I.V., new pistons fi £5, or offer; also new 25 ampere Singer acc lator, 10s.—Brown, 2, Siebert Rd., Westcombe Park

WANTED, good motor cycle; exchange modern p forte, in first-class condition, cash adjustm London.—No. L1,381, *The Motor Cycle* Offices, 20, T St., E.C.

FOR Aeronautics.—Model practical petrol mo Model practical petrol motors! Water or cooled, ½h.p., machined sets, 9s. 9d.; many sizes. 10h.p.; list 4d.—Madison Aerial Co., Littleover, D

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L. P. and R., trembler, brand new; 13s.—Harris Newby Terrace, Bangor, Wales.

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BRON, Registered 291-289, vastly superior to platinum, cures misfiring; best contacts for blades, rockers, magnetos, coils. Jebron has no equal.

BRON, 2s. 6d. each, rivet fitted; Jebron trimmers, 9d.; Jebron screws fit Bosch magnetos DA2, DAV, t breakers 5s. 5b. 5c. 5s. 6d. pair; old screws Jeb- d. 2s. 6d. each. Over 10,000 fitted. Try it.

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DIUM Champion Contacts. — Any parts fitted returned same day. 1s. 3d. each, warranted pure, iridium trimmers, 9d.; magneto screws refitted 1. each.—Williams, 16, Wellington St., Woolwich.

BEERS Patent Cycle Petrol Economisers have proved themselves successful beyond doubt; testi- ials received state they reduce petrol consumption, ower, flexibility, save pedalling up hills. Special for one month only to enable cyclists to try it. .—Petrol Economisers, Ltd., 92, Avenue Chambers, ampton Row, London.

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TREADING with rubber studs, 12s. 6d.; new studded covers, 21s.; why pay more?—Fox, Suffolk Birmingham.

CHELIN Cover, 26 by 2½, 17s. 6d.; Palmer, 28 by 2½, 21s.; both beaded, new.—P. Mumford, Eden Kingston-on-Thames.

STONE for Covers and Tubes; see last week's advertisement.—215 and 217, Pentonville Rd. 's Cross, London, N.

YER, Continental, 26 by 2½, beaded, 22s. 6d.; Continental Model de Course, 26 by 2, 28s.; both new. 4, Stratford Rd., Birmingham.

W 26 by 2½ R.O.M. Steel and Rubber Tyre, will not fit rim; money returned if not satisfied; 35s.— 47, Walnut St., Southport.

LIFAX.—Tyres, Motor Cycle Covers, all sizes, from 12s. 9d.; tubes, with valves, 4s. 11d. — Exchange Westgate, Halifax.

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E'S Tyre Exchange!—Exchange that old cover for a new one and cash difference; liberal allowances; ake supplied. Try us.—69, Leather Lane, Holborn n.

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TABLISHED Cycle, Motor, and Side-line business for sale; important market town (South), main road entrance; turnover £800; stock about £250. 3,646 *Motor Cycle* Offices, Coventry.

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Price: 13/6 and upwards.

These coils take less current than any other coil on the market and are fully guaranteed.

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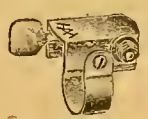

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Catalogues and full particulars sent willingly.

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PLEASE send for reduced rates for 1910 policy; personal 5s., inclusive 18s. per annum.—Bass, insurance broker, Ongar.

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QUANTITY of special joiner's tools; exchange M C goods, sidecar preferred. — Armitage, Clarendon Bridge, Hyde.

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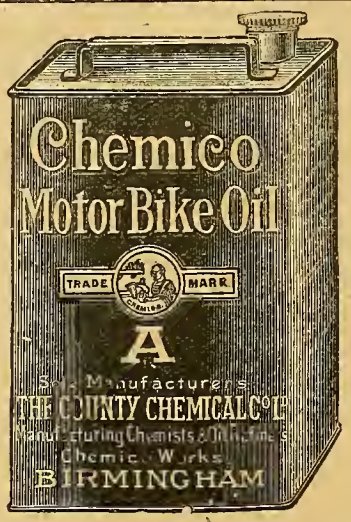
4-CYL. F.N., 3½ h.p., and sidecar, perfect, for 4½ or 5-6 h.p., same make, single or twin, magneto, two-speed, and chain drive; no objection to tricar with same specifications.—Dubois, 136, Addison Gardens, Shepherd's Bush.



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HALIFAX Motor Exchange give best possible allowances against 1910 Rex models; delivery now.—16, Westgate, Halifax.

3½h.p. Rover, for lower power and cash; sell £12 15s.; 3½ give XL spring forks for ¾ Whittle.—306, Whitehorse Rd., Croydon.

3h.p. Minerva, magneto, new Dunlop studded tyres, just overhauled, for Motosacoche or Douglas.—W. Cameron, Ballymena.

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1909 Cycle, in perfect condition, for motor cycle, about 3-3½h.p., cash adjustment.—Cheers, Waldegrave Park, Twickenham.

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MICROSCOPE, Zeiss, cost £35, oil immersion, for modern motor cycle; approval; sell £25.—Wilson, 19, Loreburn St., Dumfries.

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RALEIGHETTE, 6h.p., twin, new condition, car tyres; £50, or exchange 1909 motor cycle and £10.—T. Smith, 6, Talbot Rd., Penwortham, Preston.

GIVE 18ct. gold gent's watch, silver cigarette case, and cash for good twin, two-speed preferred.—W. Bower, 53, Hallam St., Portland Place, W.

EXCHANGE Bedroom Suite, drawing room suite, iron frame piano, for modern motor cycle, or sidecar.—38, Romily Rd., Finsbury Park, London.

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EXCHANGE 1¾h.p. Quadrant-Minerva, good running order, and Edison Home phono, 56in. brass horn new condition, for 2½h.p. or more.—Dorrell, Croxley Green.

NEW 18ct. Minute Repeating Keyless, Calender Chronograph, for 3½h.p. motor cycle, good make, or sell 20 guineas.—No. 4,050, *The Motor Cycle* Offices, Coventry.

EXCHANGE, racing model car, 8-10h.p., w.c., three speeds and reverse, cardan drive, photo, for modern magneto motor cycle, h.b. control, good make, preferably twin.—Write, Motor, The Priory, Boston.

ONE 2¾h.p. Zedel Engine, as new, perfect; also 2¾h.p. Minerva, just rebushed, both vertical, in exchange for 3 or 3½h.p. Fafnir, or sell £5.—36, Busaco St., King's Cross.

PIANO Player, full size, perfect condition; sell for £15 cash, or exchange for good magneto motor cycle, cash adjustment.—Box No. 3,973, *The Motor Cycle* Offices, Coventry.

LOOK Here!—Exchange low 5½h.p. N.S.U., Bosch Palmer cord, new belt and tyre, with Montgomery art cane sidecar, as new, for 5h.p. Chater-Peugeot.—14, Lovaine St., Middlesbrough.

LOW Frame, tank, pair 28 wheels, 28 by 2½, Moseley heavy tyres, and sundries, for Brown and Barlow, h.b. control, back rim brake, spring forks, or Price's stand.—Pinnock, 2, Landseer Rd., Holloway, N.

EXCHANGE brand new magneto lightweight for small car, tricar, or component parts, such as three-speed and reverse gear box, twin engine, magneto, etc., or sell £30.—Page, 74, East Hill, Dartford, Kent.

6h.p. Tricar, Rexette, King of Little Cars, water-cooled, two speeds, wheel steering, in excellent condition for high power motor cycle and sidecar, two-speed, magneto, or sale, £35.—Wheeler, 99, Stonefield Rd., Hastings.

10h.p. Twin Lagonda Tricar, two speeds, open frame, wheel steering, tyres new, splendid condition; too powerful for owner; will exchange for a smaller power ditto of good make, or sell £50.—Linfoot, Ramsgate, Stockton-on-Tees.

SITUATIONS VACANT.

WANTED, young man, for journalistic work, must have some technical knowledge of motor cycles and motors; give age, experience, and salary required.—Box No. 3,979, *The Motor Cycle* Offices, Coventry.

SITUATIONS WANTED.

MOTOR Engineer, 25, desires berth, used to motor cycle, car, or general work.—Alan, 58, Frances Rd., Bournemouth.

DRIVER-MECHANIC seeks situation, private service, three years' reference, drive Lanchester, B.S.A., or Singer.—A. Coates, Beechwood, Berkswell, near Coventry.

MOTOR EXPERTS.

DON'T be Had!—We thoroughly inspect, test, and report on new or second-hand motor cycles, cars, etc.—Reynolds, 86, Queen St., Sheffield.

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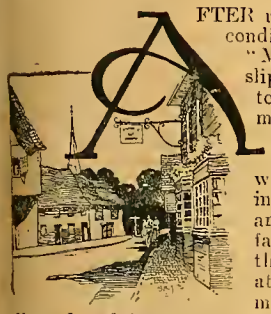
BELTS

THE MOTOR CYCLE SUPPLEMENT

A.C.U. QUARTERLY RELIABILITY TRIAL.

JUDGES' REPORT.



AFTER referring to the weather and riding conditions generally, the judges report: "Many were the victims of side-slips, and though no serious injuries to the riders were reported, several machines were rendered useless, and the competitors forced to retire. At the bottom of Dashwood Hill, where the competitors, in the interests of public safety, are usually stopped, the road surface was so treacherous that after the first few riders had fallen in attempting to remount, the remainder of the competitors were allowed a flying start. This alteration of the rules naturally gave some an advantage over others, and therefore times taken to ascend Dashwood were not strictly taken into account, as those that were stopped at the bottom were forced to make three or four attempts to climb the hill; whilst the remainder, having a flying start, ascended easily. In view of this fact, stops on Dashwood are not taken into account. It was particularly noticeable that machines which were fitted with steel-studded tyres failed hopelessly on the icy surface, and there is no doubt that the trial under notice will seriously affect the use of the steel-studded cover. On vehicles with four road wheels these covers are of great service in preventing side-slips and skidding, but it would appear that on motor bicycles rubber-studded tyres are far safer, and answer all purposes, for it is often noticed that even under certain conditions in dry weather steel-studded tyres slip abominably.

"There were sixty-six entries in the non-passenger class, sixty-five being bicycles and one a tricycle, and of these three were non-starters. Thirty machines were fitted with twin-cylinder engines, of which thirteen were lightweights and seventeen heavies; whilst there were thirty-two single-cylinder machines, one only being a lightweight, and one a tricycle. Fifteen non-stop runs were claimed, nine by twin-cylinder and six by single-cylinder machines, but in several cases traffic stops which do not count against the rider were reported. Thirty-eight competitors made one or more stoppages, the causes of which can be seen on reference to the tabular report [See *The Motor Cycle* of February 7th, pages 97-8.—Ed.], whilst ten retired—six through side-slips and the remainder from various other causes. It is interesting to note that the two-stroke engines acquitted themselves very creditably; but another comparatively new type, the James machines, again failed. The Indian made its first appearance in a Quarterly Trial, and of the four machines entered three made non-stop runs, whilst the fourth only failed through an accident over which the driver had little control.

"The F.N. tricycle made a creditable performance, and had the magneto been protected the machine would have made a non-stop run. For such a low-powered engine, it climbed the hills well, when assisted by easy pedalling.

"The Ariel failed on both hills through a slipping belt, and it would appear that the spiral spring which is relied upon to press the outer flange of the pulley against the belt is insufficient to prevent the belt slipping, and in future models some means must be adopted to take up the slack of the belt when reducing the gear.

"Clutches and multi-speed gears proved of inestimable value in every way, and even expert riders of the fixed engine type were heard to express their appreciation of free engines. Now that one or two firms with big outputs have led the way in fitting free engine clutches, the present season should see the example extensively followed.

"There is no question as to the utility of the free engine clutch, whether in the hub or on the engine shaft, and given a fairly powerful and flexible engine, for general purposes of solo riding a multi-speed gear is hardly necessary.

"In the passenger class the entries numbered eight, all of which started, but, strange to say, not one non-stop run was recorded. The A.C. tricars performed badly; two overturned through side-slipping on the treacherous road surface, and the third retired from an unknown cause. The five machines fitted with sidecars made a brave show, and had not one had a slight magneto failure, all would have come through successfully. The record entry of seventy-four machines is very gratifying to the committee, for it tends to prove that the present system of marking, which was inaugurated last year, is appreciated by the trade and private riders alike, and is far in advance of the procedure of some two years ago. The marks awarded have been revised for the present season, more headings have been made, and, in consequence, the work of the judges has been greatly increased. They tender their thanks to the many marshals and observers, without whose assistance this report and the tabular one of last week could not have been issued, and they trust to receive similar assistance in future trials.—J. W. G. Brooker, H. Gillard Cove, Archibald Sharp."

AUTO CYCLE UNION NOTES.

A number of new members were elected at a recent committee meeting of the A.C.U.

The A.C.U. has now decided to consider applications for the posts of handicappers from those qualified to make applications. Each application will be judged on its individual merits.

To the list of entries for the Tourist Trophy which appeared in our issue of the 7th inst. must be added three Dot machines entered by H. Reed. The total number of entries now reaches twenty-nine.

At a recent Competitions Committee of the A.C.U. definite instructions were given to the judges to award marks to those machines competing in the Quarterly Trials for excellence of design. The judges, however, have found it quite impracticable to carry out these instructions, and, in consequence, in future the column of marks under this heading will not be included. To the list of marks published in the *R.A.C. Journal*, the words "subject to confirmation" were accidentally omitted. These marks have yet to be confirmed.

In last week's issue it was stated that H. G. Bell's F.N. tricycle was the first to complete the Uxbridge to Banbury and back course in the A.C.U. Quarterly Trial, but Dr. Stephen G. Longworth reminds us that he competed in the October combined Quarterly and Consumption Trials of 1906 on a 3 h.p. two-speed Rex tricycle, completing the distance with only one stop, due to a misfiring trouble.

CLUB

Cambridge University M.C.C.

Next Saturday the club run is to Clare. On March 5th a competition will be held, details to be announced later.

Proposed Club for St. Helens (Lancs.)

A meeting of all motor cycle and motor car owners in St. Helen's, Lancs. has been called for to-morrow (Tuesday), the intention being, if possible, to start an association.

Batley and District M.C.C.

This club has now been successfully launched, and already twenty members are enrolled, and, what is more tangible, have paid their subscriptions.

Streatham and District M.C.C.

There will be an introductory run to Godstone on Saturday next, the 19th inst., at 3 p.m. Tea and concert at Godstone 5 p.m. In a week or two Mr. A. E. Bennett has promised a lecture on "Magnetos."

A Motor Cycle Club for Doncaster and District.

A number of motor cyclists in Doncaster are anxious to form a club, and we are asked by Mr. George F. Stafford, of 7, Baxter Gate, to state that he will be very pleased to receive the names and addresses of local readers interested in this project. A meeting will then be arranged, rules drawn up, and officers elected.

Liverpool M.C.

On Thursday last a club supper was held at headquarters. Next Thursday an inter-club billiard match has been arranged between Manchester Motor Club and Liverpool Motor Club, consisting of four players aside, first game at Manchester headquarters, starting 7 p.m. On Friday, 25th inst., members of the above club will visit the Manchester Motor Show. Train leaves Central Station 5 p.m., or meet at show.

The "breakdown" competition referred to last week proved very interesting. Mr. Fehr, who deranged the Premier motor cycle lent by Messrs. Owens, had carefully cut the wire leading from the high-tension terminal on the magneto to the sparking plug, so that a shortage of the current took place, and of the competitors only one—Mr. S. W. Carty—located the trouble in the five minutes' time limit, he therefore being adjudged the winner.

Glasgow M.C.C.

Prizes won during 1909 were presented at a smoking concert held at the Landsdowne Restaurant, Hope Street, Glasgow, on the 3rd inst. An excellent musical programme was provided by Messrs. Hood, Deans, Kirkpatrick, Jack Collins, Finlay Brown, and others, and during the evening a gold watch was presented to Mr. J. S. Fulton. In introducing the matter, Mr. H. S. Bilbe, in a humorous speech, accused Mr. Fulton of having spoilt the members during his four years' term of office by doing work that should rightly have been performed by others, and now that he had relinquished the post of secretary it was not always easy to find members ready to do what was necessary. Mr. Hutchison, one of the original members of the club, in an excellent speech, asked the late secretary to accept the presentation as a mark of appreciation from the club. Mr. Fulton's speech in reply dealt with the early days of motor cycling, when he and Mr. Hutchison had ridden 2 h.p. Clément-Garrard machines. He stated that the Glasgow M.C.C. was the pioneer motor cycle club of Scotland, dating back to 1902, and urged the members to keep it always in the lead. The chair was taken by Mr. D. S. Baddeley.

Stockport and District M.C.C.

The A.G.M. was held at the new headquarters, White Lion Hotel. Some thirty members were present. The hon. secretary's report was most favourable. The number of members on the books at the close of last year was forty-five. The treasurer's balance sheet showed a fair balance in hand.

Coventry and Warwickshire M.C.

The sixth annual dinner and presentation of prizes took place on Friday evening last in St. Mary's Hall, Coventry.

St. Mary's Hall is a building which has seen many royal functions, but it is the first time a motor club banquet has been held within its walls, which are hung with tapestry representing some of the more important scenes in the history of the city, and contains also several suits of ancient armour.

Upwards of ninety members and friends assembled round the three tastefully-arranged tables under the chairmanship of the retiring president, Colonel Wyley, V.D., who was supported by his Worship the Mayor of Coventry (Ald. Wm. Lee), Messrs. J. E. Swindlehurst (City Engineer), John V. Pugh, E. M. Iliffe, M. J. Schulte, H. W. Stauer, etc. The vice-chairs were occupied by Messrs. E. J. Hardy, V. A. Holroyd, and V. Riley.

After the Royal toast, proposed by the Chairman, the Mayor proposed "The Club," and gave a brief *résumé* of its work during the past year; he particularly referred to the able manner in which Col. Wyley had filled the post of president since the inauguration of the club six years ago, and asked him to accept a handsome inkstand as a small appreciation of his services. The retiring hon. treasurer, Mr. E. J. Hardy, was also the recipient of a solid silver salver, suitably inscribed.

Colonel Wyley, responding, thanked the club, and referred to the growth of the membership, which had now reached 150. He suggested that this year's Military Reconnaissance should consist of an attack on

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NEWS

Sydney R. Jones

Burnley Victoria Cycle and M.C.

Motor cyclists in Burnley and district who would like to join a club are asked to communicate with Mr. E. Brown, hon. secretary of the Burnley Victoria Motor Club, Myrtle Cottage, Burnley, or attend a special meeting to be held at the Central Commercial Hotel, St. James's Row, Burnley, on Wednesday next, the 16th inst., at 7.45 p.m.

Nottingham and District M.C.C.

At the recent A.G.M. the report was adopted, and the balance-sheet and accounts (which showed a small balance in hand) passed. Lord Henry Bentinck is to be invited to act as president this year. The 1909 committee was re-elected *en bloc*. A discussion ensued as to the advisability of continuing affiliation with the A.C.U., and the committee was instructed to recommence action at the end of six months.

Harrogate and District M.C.C.

An instructive paper was read on Thursday evening last by Mr. F. C. Bagshaw, entitled "Preparations for the Tourist Trophy Race." The lecturer dealt with his subject very thoroughly, and at the conclusion he was heartily thanked for his very able paper.

Will members please note that next Saturday the carnival takes place?

Friday evening last in St. Mary's Hall, Coventry.

Walthamstow M.C.

The business of the A.G.M. not being completed at the last sitting, it was adjourned to Wednesday next, when it is hoped that members will make it convenient to attend at headquarters at 8 p.m. to complete the agenda

Bishop Auckland, Darlington and District M.C.

At the recent annual general meeting of the above club, presided over by Mr. T. W. Craig (chairman), the reports of the secretary and treasurer, which showed the very satisfactory progress the club had made since its formation in July, 1909, and the favourable condition of its finances, were adopted. The membership of the club now totals ninety-four.

Western District M.C. (London).

The following items of general interest took place at the last committee meeting. The committee, after hearing the result of the chairman's interview with the secretary of the A.C.U., decided to continue the affiliation for the present year. The fixture list was entrusted to Messrs. Vowler, Hughes, and Babbage, and it is hoped that it will be ready in a few days. These gentlemen were instructed to fix up competitions for the first Sunday in each month. The Winter and Smart cups will be competed for as previously, and the Triumph Cup will be run for to Daventry.

Middlesbrough and District M.C.C.

Last Wednesday evening Mr. W. A. Macgregor delivered a lecture entitled "Oils and Lubrication." As fully seventy-five per cent. of those present joined in the discussion which followed the paper, there is no doubt that it was thoroughly appreciated. Mr. J. Bellerby (chairman of committee) occupied the chair.

A letter that had been sent to the secretary by Mr. George R. Sanderson (one of the founders, and hon. treasurer and financial secretary of the club) resigning his position as hon. treasurer was read during the evening. Mr. Sanderson is leaving the district. Many expressions of regret were made at the loss of so enthusiastic an officer, and the letter was left to the committee to answer in suitable manner. Mr. J. G. Fairgrieve was elected to the office of hon. treasurer.

Northamptonshire M.C.C.

Mr. D. C. M. Hume treated the members of the N.M.C.C. to a brilliant and original lecture on "Magneto Ignition" on February 8th, the interest he had excited being shown by volleys of questions at the conclusion of the paper. He did not avoid deep technicalities, but the excellent slides made specially for the occasion enabled even the novices present to grasp his drift. Some of his matter represented entirely original experiments concluded within the last week or two. He showed a slide of Prof. Fleming's table of the voltages required to leap spark gaps of varying widths; it was interesting to notice that 30,000 volts are required to give a spark across a gap of 20 mm. In addition, he showed slides depicting electrical processes in the magneto in curve form, including the potential differences in the primary circuit, and the voltage at varying engine speeds with the spark retarded, half advanced, and fully advanced. Exhibits illustrating the complete range of Simms specialities crowned the interest of a most instructive evening.

Newcastle M.C.

The annual meeting was held in the County Hotel, Newcastle, last Wednesday, Mr. Arthur J. Lucas presiding. The annual report, presented by Mr. Robson, the secretary, recorded the successes of one of the busiest years in the annals of the club, and was unanimously adopted. The auditor's report on the secretary's accounts, which showed a balance in hand of £11, was received.

Mr. Alan Robson (secretary) moved: "That the affairs of this club be wound up, and its membership be transferred direct to the North-eastern Automobile Association." The motion met with some opposition.

Mr. Dunn suggested that all the clubs in the North should amalgamate, and seek to secure an equal and just absorption of all the clubs. Their funds were good, and he knew of three gentlemen who were prepared, if need be, to put down £20 to carry on the club.

An amendment moved by Mr. J. Daglish, calling for a more complete scheme, pending which the form of the club should not be changed, was carried by a large majority.

MOTOR CYCLING CLUB: FORTHCOMING EVENTS.

The Jarrott Cup Competition.

THE rules and regulations governing the M.C.C.'s London to Land's End and back run, at Easter, for the Jarrott Cup will be circulated among members within the next few days, and potential participants should make a note of the dates, March 26th and 28th.

In order to make the run more attractive, competitors' machines will not be locked up during the Sunday, the intervening day between the outward and homeward journeys, so that entrants will be able to take rides to interesting places near Penzance, and there are many. Members who are keen on long rides of this nature, free from harassing restrictions, should not miss this classic ride. The road conditions and scenery are particularly varied, albeit interesting, and those who have never done the journey have missed a real treat. The trials hon. sec. for this event is Mr. E. Gwynne, White Lodge, Credition Road, Hampstead, N.W.

London-Edinburgh Run.

Mr. Harry G. Bell is again acting as trials hon. secretary for this run, which increases in popularity every year, and has already started to work. The rules and regulations will reach members shortly, and there will be several new features to add to the attractiveness of this event. As proof of the popularity and keenness of riders in this run, it is sufficient to state that Mr. Bell has already received numerous enquiries for particulars, one being from a good friend of the club, who has acted as checker for several years past. He wants to take a still more active part in the run this year by competing.

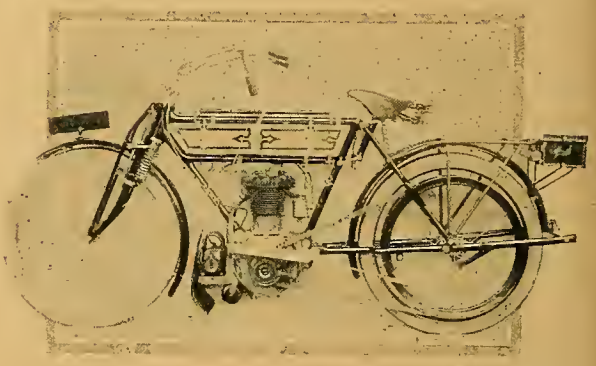
The Opening Run to Brighton.

The opening run to Brighton, fixed for March 12th, will commence the year's fixtures on the road. Mr. E. B. Dickson, the popular captain of the club, has the arrangements in hand.

THE 3½ h.p. SWIFT-ARIEL.

THE Swift Cycle Co., Ltd., are now selling an exceedingly well-made motor bicycle known as the Swift-Ariel, entirely handled by the Swift Cycle Co.'s London depot, 15-16, Holborn Viaduct, E.C., whither all enquiries should be addressed.

In the 3½ h.p. Swift-Ariel all details have been carefully considered. The workmanship is of the best, and the machine is one which should strongly appeal to the British public. The engine is of 3½ h.p. (85 by 85 mm.) with mechanically operated valves situated side by side. The ignition is by chain-driven magneto, while the chain is protected in an aluminium case. The transmission is by means of a ⅞in. rubber belt of the best quality, while on the engine pulley is fitted a patent variable gear with adjustable pulley, free engine and starting handle, controlled by a lever situated on the left handle-bar, which expands and contracts the pulley flanges, and gives ratios varying from 1 to 4 to 1 to 5. On each side of the engine are aluminium footrests, through which rubber studs project, thus affording a comfortable position for the rider's feet, and, at the same time, absorbing much of the vibration. The engine is supplied with gas by means of a Brown and Barlow handle-bar controlled carburetter. The spring forks are the well-known Druid, which allow a front rim brake to be fitted. Not only are the forks sprung, but also the seat-pillar, which is suspended at the rear of the seat tube and connected to it by double rocking levers and two suspension springs. A recoil spring is also provided. The details of the machine are particularly well thought out. For example, a generator clip is fitted to the right hand side of the fork crown, the wide and efficient mudguards are held down by bolts provided with rubber buffers, while a Reflex road light, which reflects a red rear light, is supplied with every machine. In addition to these, the outfit of tools is not only of the best quality but most complete. An efficient stand is fixed to the rear fork ends, while a strong tubular carrier, provided with a tube holding the lubricator and paraffin oil cans, is also supplied. We have no doubt that the Swift-Ariel will rapidly create a big demand among motor cycle connoisseurs.



The 3½ h.p. 85×85 mm. Swift-Ariel motor bicycle referred to in the accompanying matter.

FATAL ACCIDENT TO A MOTOR CYCLIST.

On Wednesday last at Stromford Bridge, near Tittensor, a most unfortunate collision occurred between a motor cyclist named Bertram Hodder, of Stone, and a car owned by the Duke of Westminster, which was driven by George Powell. The car was proceeding from Eaton Hall to Belvoir Castle, whilst the motor cyclist was riding to his place of business in the direction of Newcastle. The occupants of the car said that they saw the motor cyclist approaching, and all of a sudden he went across the road in front of the car. [A local rider sends us his views of the occurrence, and considers that most likely the motor cyclist turned into the gutter in order to pass, and, owing to the mud, skidded in front of the car. —Ed.] The motor cyclist's head seemed to have struck the centre of the forepart of the car, resulting in terrible injuries. The unfortunate man was removed to the North Staffordshire Infirmary, where he died immediately on arrival.

THE NEW TAXATION SCHEME.

We have received a letter from a Sussex reader asking us to urge one of the motoring organisations to take up the motor cyclists' case in order to bring about some remedy to the obvious injustice of the present proposed motor cycle taxation before the Budget passes into law. The election is over and the Budget will shortly be reconsidered. His chief grumble seems to be the injustice of taxing a lightweight motor-assisted bicycle just the same fee as a 9 h.p. motor bicycle with a sidecar attachment. He suggests that a 15s. licence for motor bicycles up to 5 h.p. with an increase of 2s. 6d. for each h.p. over 5 h.p. would be much fairer. We quite agree, but, unfortunately, we cannot hold out much hope that our correspondent's views will be accepted by the powers that be at this stage. The A.C.U. and M.U. have already urged the motor cyclists' case before the Chancellor of the Exchequer, and everything has apparently been done by these bodies to prevent the increase of the 15s. tax without effect. The riders of lightweight machines must, we fear, pay for the present on the same basis as for heavier and more powerful machines.

THE MOTOR CYCLE

Vol. 8. No. 361. CONTENTS. Feb. 21st, 1910.

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Road Surfaces.

IF there is one thing more than another which is brought closely before motor cyclists at this time of the year it is the extreme contrast between the surfaces of roads which are or are not treated with one or other of the modern compounds used as top dressing on main roads. Some which are used for dust laying seem to be quite as effective in preventing mud, and it is to these we refer particularly.

In the winter time, when most roads are covered with mud in various stages of wet, dry and drying, to suddenly leave a surface on which one has some difficulty in steering a straight course, and to arrive on half a mile or a mile of perfect waterproofed surface due to proper road treatment, makes one wonder why it should not be possible to treat all main roads in a way which would render them suitable for modern traffic despite the weather conditions.

Surely it must be more economical in the long run to provide a surface which does not require the mud removed from it at intervals, and which also does not appear to require the constant repairing which is necessary with a macadam surface. In our opinion, if the whole of the motoring organisations were to join hands and agitate for all main roads to be specially treated in such a way that they would resist rain and not work up into a pasty compound on which it is a misery to ride, they would assist all classes of motorists far more than anything else they could possibly do in the way of forwarding the motoring movement. Although it is possible to ride a motor bicycle on the muddiest roads, the pastime would be made far more delightful if one could always be sure of at least a moderately smooth and dry surface at any time during the winter months. That it is possible there is ample proof, and all road users would welcome the more general adoption of a waterproofed road surface.

Official Recognition of Records.

EVER since *The Motor Cycle* compiled the first complete list of motor cycle records, we have felt that the duty is one which should be undertaken by the governing body in each country. Records made at home are at present verified and sanctioned by the Auto Cycle Union, but as regards foreign records no official list is kept by the A.C.U., so far as we are aware; at any rate, no official list is circulated. This places us in an awkward position regarding American records, as we are left to accept or reject a record as we think fit. We take each claim on its merits, and in the absence of official measurements and the usual verifications we are in a quandary as to whether the record should be recognised. This state of affairs is not as it should be, and it is high time the A.C.U. extended its sphere of usefulness by taking note of all foreign records which are properly authenticated and keeping a Blue Book. On this same subject a letter appears in our correspondence pages from Dr. J. P. Thornley, chairman of the Federation of American Motor Cyclists, suggesting that the Auto Cycle Union appoint a committee to confer with the F.A.M. once a year, and issue a list of world's records for the preceding year. We would strongly urge the British governing body to adopt the suggestion, and so put an end to the prevailing suspicion concerning American records in general. The benefits that would accrue to manufacturers by reliable comparisons of speeds attained at home and abroad from given cubical capacities would be of inestimable value.

1200 MILES ON A MOTOR BICYCLE WITH SIDECAR

BY

VINCENT BURROW, M.D.

IT has always been my desire since becoming a motor cyclist in 1902 to plan out and undertake a tour once a year. I have usually managed to accomplish this with fair success. Riding solus, however, appealed to me less and less, and I hailed with delight the advent of the trailer, forecar attachment, and latterly the sidecar, all three of which I have tried, and have discarded the two former in preference for the more sociable sidecar attachment.

Accordingly, last year my wife and I decided upon a tour from the bleak coast of Northumberland to Devonshire. We could only manage a fortnight, so decided to allow a week for travelling, the remaining seven days to be devoted to seeing some of the beauty spots of Devon at our leisure.

And now a few words as to our machine and equipment. Profiting by former experience, and by the advice given and repeated *ad nauseam* in *The Motor Cycle*, that a passenger machine must have plenty of power and be provided with a two-speed and free engine device, I decided on a 6 h.p. twin-cylinder N.S.U., with N.S.U. two-speed and free engine pulley, Bosch magneto, 1in. Continental belt, and Peter Union tyres. The sidecar is a Montgomery, flexible pattern.

As to Luggage Carried.

There is a large wicker luncheon basket under seat of sidecar, which we packed to overflowing with luggage, not forgetting a few spare parts for the motor. We also made a large hold-all of American cloth, packed this, and stowed it under the seat between the latter and the luncheon basket, securing it with straps. During the tour we found this rather a nuisance to attach or take off, and another time should remove the wicker basket altogether and strap in its place a fair-sized Japanese basket, which is much handier, and would serve well, if properly lined. Besides the above, a fair-sized basket, containing kettle, pans, spirit stove, provisions, etc., for picnicking on the road, was set in the front of the sidecar at the passenger's feet.

The Route.

We arranged to go down by the western route and return by the Exeter to London road, striking north at Andover, and getting on the Great North Road *viâ* Oxford and Northampton at Stamford.

FIRST DAY.—Newbiggin to Hexham, 54 miles.

Leaving Newbiggin at 5 p.m. on September 7th in good weather, we drove *viâ* Gosforth and Heddon-on-the-Wall to Hexham, arriving there about dusk. The ride was uneventful, except that the engine for the first twenty miles was frequently misfiring, and there was some slipping of the high gear clutch on some of the hills. The route is very hilly, and the road rough; this follows the line of the old Picts' wall.

Hexham is situated in a very picturesque part of the county. Buildings of note are a very fine old abbey and, in contrast, a modern hydro.

SECOND DAY.—Hexham to Tarporley, 155 miles.

After partaking of a light breakfast of tea and bread and butter, we left Hexham at 7.45 a.m., after having replenished the petrol tank, and soon arrived at Haltwhistle, where one of the two steep hills between Newcastle and Carlisle is encountered. Here the gradient, which is about 1 in 8, necessitated the use of the low gear and slight pedalling. The other hill, equally steep, is Greenhead, which we negotiated successfully on the low gear. The morning was up to now thick and misty, but this gradually cleared as we neared Brampton, and for the rest of the day was clear and bright.

Proceeding, with the twin-cylinder gently purring, and the high gear no longer slipping, we entered Carlisle about 10 a.m., and threaded our way amongst the streets of that city.

Two miles south of Carlisle, we drew up by the roadside, and, having obtained some fresh milk at a farm,

Showing the country within the range of a motor cyclist in less than a fortnight. See Dr. Vincent Burrow's article.

1200 Miles on a Motor Bicycle with Sidecar.—

we took out our lunch basket, the kettle was soon boiling, and we made a hearty breakfast. The sun was now beginning to exert its power, and after the N.E. coast, we found it very hot. After washing up and repacking, we proceeded on our way, filling up with

Tyneda'e, Hexham.

petrol at Penrith. We passed through Shap, and took Shap Fell well on top gear, except for about 150 yards near the summit, which required the low gear, when the motor made such short work of it that I tried the high gear again, on which we breasted the summit. On the other side we coasted down for some miles with engine free, saving our oil and petrol.

Passing through Kendal, we had an uneventful run *viâ* Lancaster to Preston, where I obtained a gallon of petrol at an exorbitant price. On enquiring the way to Wigan, no one seemed to have any idea that there was a town of that name within 100 miles. We were finally directed to Chorley, which appears to be a large colliery or manufacturing town. Having gone several miles, we at last came upon a sign-board, when, alas! we found we were making direct for Blackburn. Calling to our aid a friendly policeman, we were given instructions which enabled us to get on the Chorley Road, across country. About one mile from Chorley is the turning to Wigan—a sharp turn on the right. About this spot we had tea on the roadside.

Wending along Wigan Tramlines.

Entering Wigan, we wended our way along the many miles of tramlines and stone setts towards Warrington. This part of the route is very bad, the jolting is atrocious, the surface is horrible, and on a wet day motor bicycling here would ensure a succession of skids. To add to all this, there are no sign-boards of any description. As Warrington is approached the road, however, improves.

From Warrington to Tarporley the road is good, and we were making good time when the back tyre went flat, just as it was getting dark. Not having jointed tubes, I had to light up, when I found a nail sticking through cover and tube. I looked carefully to see whether the nail had made two holes in the tube, but could only detect one, so contented myself with mending the visible puncture, and pumped up. The evening proved very dark, and to make things worse, my gas lamp would not burn well, so that I had to drive slowly, and it was 8.30 when we arrived at Tarporley. We put up at this old world town, and were quite ready for our supper. That evening we found, as obtained every evening after motoring any distance, that as soon as we had finished supper, we could not keep awake, and were always ready for bed immediately we had finished eating. I must recommend motoring for insomnia.

THIRD DAY. — Tarporley to Stroud, 130 miles.

After the usual light breakfast about 7.15 a.m., I went to get the motor out when, alas! I found the rear tyre flat. I thought it would save time to get a repairer to see to it; it proved a vain thought. The repairer arrived half asleep, and I looked anxiously at him, but failed to see any signs of levers, solution, patches, etc. It sufficed that he had brought himself upon the scene. With exasperating and slothful torpidity he hazarded to take off the cover, after walking round the machine and eyeing it suspiciously. It was, as I suspected, a second puncture caused by the nail I had picked up the day before, and which I had not discovered in the dark the previous evening. My repairer calmly suggested that, unless I provided him with solution, patches, chalk, etc., he would have to return home for his. Exasperated, I thrust my repair outfit into his hands and set to work myself also, and, whilst waiting for the cover to be replaced,

Shap Wells Hotel, Penrith.

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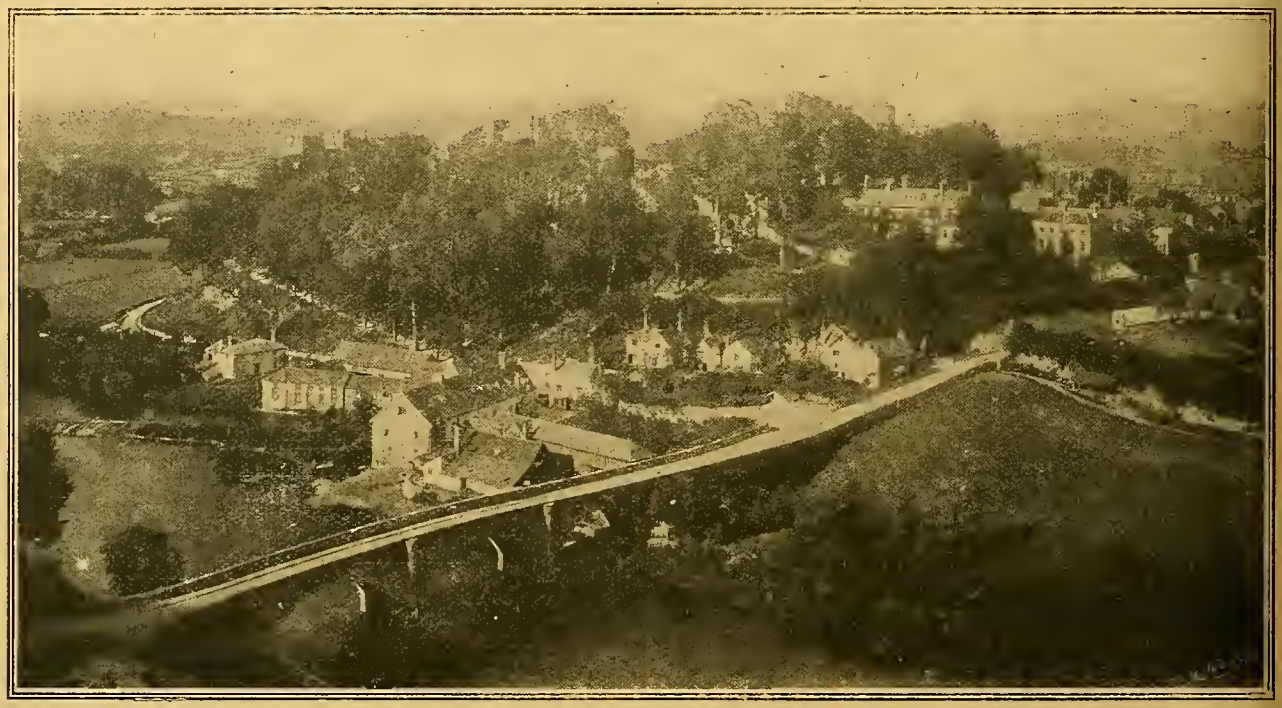
oiled the magneto and wheel spindles. Eventually, we were at last ready and attempted to start, but had only gone a few dozen yards when we encountered a dozen or so of horses (hunters) returning from their morning exercise. They objected to the throb of the engine, and had to be coaxed into a side lane before we could proceed. The weather was again magnificent, and we had an enjoyable run to Whitchurch, thence onward towards Shrewsbury, when we found the horn refused to utter its usual warning note. My passenger attempted to clean the reed whilst we were going along, but unluckily bent it. I spent upwards of half an hour trying to adjust that reed, and to anyone who attempts a similar adjustment on the road I would give this one word of advice—"don't."

In Shrewsbury I obtained a new reed and some petrol, and, having noticed my Continental belt rather the worse for wear, the rubber having worn off one side, I spent upwards of an hour trying to get another, but could get no belt there of any description. Shrewsbury is very hilly, but is a nice clean city.

Usefulness of a Spare Piece of Belt.

Passing over the bridge on the south side, we again got on our way, and, halting a short time for breakfast, picnic fashion, afterwards were soon passing through Church Stretton. We encountered a long hill between the latter town and Ludlow, close to which town the belt broke. Inwardly thanking the N.S.U. people for including a spare half foot of belt with the tool outfit, I pieced the belt, in the broiling sun. We encountered another long hill between Ludlow and Hereford, taking some more petrol at Leominster. The machine took both hills on top gear. In the afternoon we ran into Hereford, where I got a new Gloria belt. This I carried with me, and the old belt took us to Exeter previous to my discarding it.

We spent an hour in Hereford, and had tea there. Thence we ran on to Ross, hoping to see something of the beautiful Wye Valley, but were disappointed, as to see this it is necessary to go on to Monmouth, instead of which we drove on to Gloucester, passing over some very mountainous country necessitating much low gear work. Passing through Gloucester, we found the place decorated with flags and bunting and very congested—it was the Gloucester Annual Festival. We did not delay, however, and were soon climbing the formidable hills *en route* for Stroud; the low gear was again required, and on the worst part of the gradient we were forced to run on to the grass to avoid a long line of brewers' drays drawn across the road.



Castle Hill and Dinham Bridge, Ludlow.

After passing them and arriving on the top of the hill, from which we got a magnificent view, I took out ¾in. from the hard-worked and stretched belt.

At 6.30 p.m. we entered Stroud, which is built on the side of a veritable mountain, and, not knowing the town, we ran straight up on the low gear, when we found we had overshot the main street and had to descend again. The gradient is certainly not less than 1 in 10.

On this day I discovered why my lamp had burnt so badly the previous evening. There was a small pin hole in the rubber tube leading from the generator. Luckily this was near the lamp, and allowed me length enough to cut out the defective portion.

FOURTH DAY.—Stroud to Bath and Exeter, 120 miles.

The weather was magnificent when we left at eight o'clock. There was a stiff hill to climb out of Nailsworth (where pins are made), but on reaching the summit we got a splendid view of the beautiful Stroud Valley.

We found the roads bad and much cut up by farm carts as far as Cross Hands. We climbed a long hill

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near Cold Ashton, and then had a "free engine" run for three miles to Bath, arriving there at 9.45.

We stayed an hour, and on leaving essayed to climb the long but gentle gradient out of the city. The tram lines and road were wet and greasy, and here we had a startling experience. Fortunately, I had put the engine on the low gear, owing to the grease, when suddenly we began to skid on the treacherous oolite surface. There was a cart on one side, and coming down the centre of the road was a tramcar. We slithered broadside fashion over to the left and brought up against the kerb, the tram just missing the sidecar, which was attached to the right-hand side of the cycle, by a few millimetres. Needless to say, my passenger walked up the remainder of the hill, whilst I, by keeping my feet dangling on the ground, managed to get to the top, but not without several bad skids, but now I had the whole road to cut figures on.

Proceeding, we "freeled" down a long hill to Dunkerton, then up a veritable mountain, and down again to Radstock; again up a very steep bank to a place where we alighted for breakfast, and where I again oiled the magneto. It was now very hot again, but the heat only troubled us when we alighted and missed the rushing of the air past our rapidly moving vehicle.

Bird's eye view of Stroud from Rodborough.

The road to Wells was bad, but we got there at 1 p.m. We stopped to admire the magnificent cathedral, and entered the sacred building. The air inside was delightfully cool.

Cheddar Cliffs and Caves.

We then proceeded along the Mendip Hills to Cheddar, which is quite a summer holiday resort, and here we visited the caves. These are well worth inspecting, and the one we entered was lit up by electricity, arc light, and incandescent. These caves are in the cliff, and were formed by subterranean rivers. They were discovered in 1893 and a further series in 1898. The interiors are very beautiful; there are thousands of stalactites depending from the roof, of all sizes, and the gleam of the arc lights upon the snowy white calcareous deposits in certain places produces a wonderful and pleasing spectacle. A niche, high up in one of the inner caves, when lit up is supposed to indicate a representation of King Solomon's Temple, with the Archangel at the side. Another effect caused by the light striking the rock facing this is a representation of Niagara Falls.

Having taken our fill of these sights, we left at three in the broiling heat. I soon had to remove a piece from the belt, and, passing through Axbridge, we ran on to within a mile or so of Bridgwater, where we stopped to boil our kettle and have tea. Then we ran on to Taunton, filled up with petrol, and left at 5.45. There is a long stiff hill out of Wellington, and the road is bad. Passing through sleepy Cullompton, we made our way towards Exeter, when the belt broke near Pinhoe. One mile further on it again broke. This delayed us so much that it was half past eight when we entered the city of Exeter, and put up for the night.

All this day we were troubled with defective lubrication. I found it most difficult, and often impossible, to obtain Price's or Vacuum oils, and the substitute tendered by garages was useless, and occasionally the engine actually stopped from running dry.

FIFTH DAY.—Exeter to Cullompton, 12 miles.

Having arrived in Devonshire, we were now ready for a well earned rest from long distance touring for a few days. The motor had so far behaved very well indeed.

We spent the day in Exeter, which is a very interesting old city. After walking from the Arcade in Eastgate to the Exe Bridge, passing several very old churches on the way, we returned and went into the Guildhall. This old building, dating back to 1330 A.D., fashioned of Devon stone, was formerly used as a merchants' hall, but now is used as an assize court for the county of Exeter. The main hall is hung with portraits of former mayors, and has on the panelling the arms of all the old city guilds, most of them now extinct.

Northernhay Park is pleasant after the bustle of the streets. We also saw the remains of the old castle and city walls, within which are situated the county assize courts. In the main court is hung the famous picture entitled "Thou shalt not bear false witness," representing the trial of Susannah and the two perjurers before Daniel. It was in this court that the murderer John Lee was tried and convicted twenty years ago. We were shown the cell in which he was placed. Some will remember that two attempts were made to hang him, but the trap failed to drop, and his sentence was commuted to penal servitude for life. I believe he was released last year, and is now residing with his parents somewhere in South-west England.

Calling for our motor, we left Exeter early in the evening, and arrived at Cullompton about six o'clock. Near this town we spent the next two days, basking in the sunshine, in glorious ease, feasting on cream and drinking delicious cider. The motor was used to take friends for short spins during our stay in Devonshire.

(To be continued.)

THE QUARTERLY TRIALS.

A CRITICISM BY A.E.F.

AS a spectator at the last Quarterly Trials I was consumed with wonderment; but for a time I held my peace, thinking my inexperience in such matters had made me ultra-critical, and that perhaps all motor cycle competitions were conducted in the same haphazard fashion. A chorus of complaints from more expert quarters has now inspired me to speak freely of what I saw and heard. As an enthusiastic rider myself, I thought the officials had bitten off rather more than they could chew in aspiring to check seventy-five riders for absolute non-stops over a 125 miles course! The gentlemen responsible for this arduous job were contained in two or three motor cars, and were compelled by the exigencies of duty first to sprint ahead of the entrants, then pause an hour or more at Dashwood, then sprint madly again into Banbury, then lunch, then sprint out madly to Amersham, pause another hour or so, and finally sprint madly once more into Uxbridge. Nobody saw less of the trial than they did, except on the two timed hills.

7,000 Miles to be Officially Observed.

The entrants covered about 7,000 miles between them, and of that distance the officials cannot conceivably have "observed" more than a tenth. An impartial outsider may therefore be pardoned for asking on what evidence the alleged "non-stops" rest. On the observations of other competitors maybe—each man being jealously scrutinised by the other seventy-four? He is certainly jealously scrutinised, but only in very rare cases is he reported to the officials. Few men like the game of espionage; some few who would leap at the chance of showing up a dishonest rival may stand in similar danger themselves. I doubt if one man out of every twenty-five entrants would care to report manifest dishonesty on the part of a rival. Then each competitor's non-stop depends on his own honesty? We might depend on that if the event were a purely sporting competition, devoid of material awards, and contested solely by the highest type of sportsman, be he amateur or professional. But anyone can compete who can raise half a guinea or persuade someone else to pay it for him. In connection with this very event a certain maker wrote to a friend of mine who is an expert amateur rider, and said he would receive a better advertisement if his machine were put through by an amateur, and would he ride it? In reply my friend told me that he wrote and stated he had no intention of buying one of the machines in question, and could only ride as a "private owner" on a mount that was his personal property. The maker answered that he would be happy to send the machine along with a stamped receipt for its price, and my friend could return it at the end of the competition season! There is therefore a certain percentage of dishonesty even in these small trials, against which the honourable owners and firms ought to be protected; and *ergo*, we have no right to trust implicitly to the *bonâ fides* of the entrants, whether in ownership qualifications or in observation. Leaving all other moot points out of consideration, it was nothing more or less than a farce to award non-stops to any of the huge entry under such miserably inefficient observation as obtained on January 29th.

A RECORD FOR RELIABILITY.

Mr. T. M. Anderson, of Evesham, claims the reliability record for the above motor cycle, which was built by Mr. F. M. Lee, of Liverpool. It is on its 53,000th mile, and has not yet been in a shop for repairs. The machine is called the Waverley, and the engine is a 7 h.p. twin J.A.P.

Should the Non-stop Principle be abandoned?

We then come to the dilemma whether it is possible for the A.C.U. to perfect its observation, or whether it is necessary to abandon the "non-stop" principle altogether in trials of this character simply because of the difficulties of verification. I am bound to assert very strongly that the A.C.U. did not avail itself to the full of the facilities at its disposal. There were quite a number of car owners and motor cyclists present during a portion or the whole of the route, of whom the officials made no attempt to avail themselves. We were eyed with a sort of calm disdain by some of these gentlemen—treated as unwelcome interlopers. This is not only true of non-competing strangers, but also of men as well known in the motor cycling world as the A.C.U. officials themselves, one or two of whom when they are clad in a little brief authority forget not

The Quarterly Trials.—

only their manners, but also the responsible duties with which the motor cycling public burden them. On Dashwood Hill alone—about the handling of which climb complaints are especially rife—there were at least a dozen well-known motorists, who might have been of vast service; but here, as elsewhere, there was not even a friendly invitation to assist. As a consequence we did not push ourselves forward where we were evidently not wanted, and at Banbury we conversed amongst each other of a dozen stoppages of which the officials were totally ignorant, some of the incidents ranking against entrants now officially accredited with "non-stops," and a good sporting chance of the champion cup at the end of the year; in fact, the official award list is known to about twenty outside motorists to be a ridiculous mockery, quite apart from any information possessed by the entrants themselves, many of whom could a tale unfold, an' they would.

BOY SCOUTS, INSPECTION ON SOUTHSEA COMMON.

A capture! Boy Scouts holding up a motor cyclist and searching him for despatches.

Practical Suggestions for Improvement.

I have serious doubts whether the non-stop principle is really applicable to a large entry of motor cyclists over a long course. I know it is difficult of application to a small entry over a restricted circular course; provincial club experience has burnt that into my mind. I know it is impossible in such a trial as the last quarterly, with only two or three car loads of officials already burdened with many other arduous duties, and to attempt to maintain it under such conditions can only lead to heartburning within the Union and derision outside it. If attempts are made to prolong the system I would suggest certain practical measures, otherwise the popularity of the Trials is, in my opinion, likely to suffer.

The inquisitive scout does not stop at searching a motor cyclist. Observe the boy kneeling and searching the P. and M. motor cycle.

The man in the street has at last learned what terrific battles are fought by the Boy Scouts and the Assistance Association. The encounter took place between a party of scouts and about a dozen cars and motor cycles before Admiral Robinson last week.

The first is the limitation either of the entry or the course. An entry of twenty-five might be verified for non-stops over the present course, especially if riders were forbidden to overtake a leading car (which should be very powerful) or to fall behind a following car. An entry of seventy-five might be verified for non-stops over a shorter course, but with any staff of officials which is practicable an entry of seventy-five is not verifiable for non-stops over a 125 mile course, and the whole motor cycling public is well aware of the folly of such an attempt. The entry might therefore be limited by excising the private riders or by limiting the trade entries to one machine of each type, or, alternatively, the course might be curtailed very appreciably and converted to the "lap" type.

Secondly, if the A.C.U. retains its present system — and, knowing its ways, I suspect it will—it might at least avail itself to the full of all possible assistance. Paragraphs appealing for observers in the columns of the *R.A.C. Journal* are of little use. Some men dare not promise to assist, because their engagements are variable or because they fear bad weather; many who dare not bind themselves actually turn out on the day. There was a large muster of non-competitors out on the 29th, in spite of the awful conditions. The profits of the trial with an entry of seventy-five allow of cars and motor cycles being hired to make the observation more efficient. Southern clubs would respond if invited to make themselves responsible for particular patches of the route, especially after lunch. But I leave remedies to wiser and more experienced heads. I merely assert that the last trial was a laughable farce rather than a serious test, that the trade and the public attach precious little importance to it, and that reform is urgently demanded.

OCCASIONAL COMMENTS

BY "IXION"

Accessibility.

The cute rider never changes his make without overhauling the machine that has smitten his fancy with an eye to its accessibility. Long experience of his old mount has taught him that sundry portions are distinctly awkward to remove and replace. His first move will be to scan critically the corresponding details of the potential purchase. The cylinder, carburetter, and inlet pipes are the principal points to keep in mind. Secondly, he will carefully examine any details in which the new mount differs at all radically from the old. In particular, if he is going in for an entirely novel design, he will be specially critical in this respect. I was tremendously struck by my first inspection of a certain machine at the Stanley Show; as my dazzled gaze slowly descended to details I began to suspect that the removal or adjustment of various vital portions would be about a six hours' job; and finally I summoned to my side the head salesman on the stand and cross-examined him, with the effect that he had to plead guilty. Judge of my amusement to see this identical machine awarded nearly full marks for design in the last Quarterly Trial—I must really congratulate the A.C.U. on withdrawing those markings. In the interim since the Show I have received some dozen virulent letters complaining of the inaccessibility of parts on two or three machines there noted in my book, and therefore I recommend purchasers to be especially watchful on this point whenever they nibble at something new.

A Rained-out Magneto.

At club lectures the heckling is often of the silly order, but I have just heard of a real poser put to a lecturer upon magnetos at a club fixture the other week. The questioner asked the lecturer what was the best plan if a motor cycle was inadvertently left out in the rain till an unprotected magneto got so sodden that it would not spark. The lecturer was of opinion that ignition would be restored to order if the accessible portions were carefully dried by hand—exterior surfaces, contact breaker, carbon brush, etc. The heckler denied that this treatment had sufficed in his experience; whereupon the bold preacher, taking the bull by the horns, told him it was perfectly safe to remove the magneto and bake it for an hour or two in an oven at a gentle heat. As a matter of fact all magnetos are baked to remove damp during manufacture, and hence there is no danger in such a proceeding, provided a moderate heat is not exceeded. I can see some worried reader removing his wires and making a petrol fire under the magneto when such a mishap overtakes him!

Room for Improvement.

I live in a cascade of grumbles showered upon me by ardent and inventive riders, and I notice that two items of a motor bicycle's mechanism figure most frequently in the complaints. The first is the belt-fastener. Many riders assert that the market still lacks a thoroughly strong and satisfactory fastener, applicable to all makes of V belt. If this is so, the desiderata of a perfect fastener are that it shall be unbreakable, easy to attach, and detach; preferably it should further be adjustable.

The other item is the attachment of the exhaust valve spring cap. After fifteen years of petrol engines we still cling to the old slot and cotter, which is only easy to remove when a special tool is available, while the cotter may snap, or burr so that it cannot be withdrawn without filing, and similarly the edges of the slot may "spread" so that the cap cannot be slipped off. Is there no better way? And while I am on that point, is it not time that all valve tappets were made adjustable, and if so that the adjustment had no bad habit of re-setting itself while the engine is working?

Variable Gears.

Let me again emphasise the fact that nowadays efficient and reliable variable gears are to be had. The rider who has not owned a variably geared motor bicycle has no conception of the joys of motor cycling. To fear no hill under any conditions whatsoever is a great thing; while starting on the low gear is far and away the pleasantest method of starting I know. It is obviously better under any conditions than to sprint along wheeling two hundredweights of dead metal for it consists solely of pushing the machine along at a walking pace till it fires, lifting the valve, stepping coolly on board while there is still way on the machine and then dropping the valve once more. Though the improvement of the standard types of single speeder has certainly retarded the popularity of the variable gear, yet to my mind a good variably geared machine is almost as far ahead of the best single geared machine as the single geared machine is ahead of the 1905 3 h.p.

Many riders have not had an opportunity of seeing a good variably geared mount smartly demonstrated. I still remember the dazed astonishment writ large on the faces of certain clubmen when a visitor brought a good two-speeded mount to one of their runs. Yet all he had done was to kick it off from rest with his feet, start from rest on the bad knuckle of their test hill and climb two 25% cinder paths on a railway station embankment. It irks me to read in official reports of trials that multi-speed gears are hardly necessary, when I remember the hill-climbs in the last A.C.U. trials.

The riders were all more or less experts, the machines mostly new, and all specially tuned, not only at the outset of the run, but immediately previous to the climb. Each man had an hour before breakfast that morning, each man had an hour at the foot of Dinas Mawddwy, and a quarter of an hour, if he wanted it, at the foot of Festiniog, Wenlock Edge, and Birdlip. Yet the majority of the riders failed up Dinas, and a good percentage failed on the other hills named. Yet a multi-speed gear is hardly necessary! If variable gears ever become strictly unnecessary, a great many riders will continue to regard them as very convenient and desirable possessions.

Bradford M.C.C.

The annual open hill-climbing competition for motor cycles organised by the above club is to be held in the middle of June.

Glasgow M.C.C.

The annual general meeting will be held at the Religious Institution Rooms, 200, Buchanan Street, Glasgow, on Thursday next, the 24th inst., at 8 p.m. Several items concerning the 1910 programme will be brought up for discussion. Unattached motor cyclists are cordially invited to attend.

A Proposed Club for Leicester.

Another attempt is to be made to form a club for motor cyclists in Leicester and district, and it is hoped that this time all riders will band together to protect their own interests, and indulge in runs and competitions. Dr. C. B. Moss-Blundell sends us notice of a meeting to be held at the Stag and Pheasant, Humberstone Gate, to-day (Monday) at 8 p.m., and all interested are invited to attend.

Liverpool M.C.

The Liverpool Motor Club held its club supper and smoker at headquarters, St. George's Restaurant, Liverpool, on the 11th inst. Some thirty members sat down to an excellent repast, followed by a musical programme arranged by Mr. Woodley Jarvis. The secretary, Mr. E. L. Fehr, thanked Mr. Woodley Jarvis and the several artistes for their kindness in entertaining the members. Mr. W. Jarvis responded for the artistes.

Dublin and District M.C.C.

The fixtures for March, April, and May have been decided upon as follows: March 17th—Opening run; meet at Enniskerry at 5 p.m. for tea. March 23th—Run, Wicklow to Bray and Newtownmountkennedy; Donnybrook 10 a.m. March 28th—Run to Maryborough; Inchicore 10.30 a.m. April 16th—Paperchase Competition; meet at Donnybrook 3 p.m. May 7th—Run to Glencullen; Donnybrook 3 p.m. May 16th—180 miles open reliability trial to Lisburn and back for White Cup. May 21st—Run to Navan; Gough Monument 3 p.m.

Scarborough and District M.C.

The second annual general meeting will be held on Monday next, 28th inst., at the Pavilion Hotel, commencing at seven o'clock when the balance-sheet and annual report will be submitted and committee and officers elected. After the business part of the meeting has been transacted, Mr. R. W. Ingrose, of West Ayton (chairman), will present the prizes to the various winners in last year's competitions. At nine o'clock Mr. W. W. Hodgson, of Richmond (Yorks), hon. solicitor, will read his paper entitled "The Law Relating to Motoring." The balance-sheet shows a substantial balance in hand.

North-west London M.C.C.

The regulations for the inter-club competition with the Herts County M.C.C. to Harrogate and back at Easter have now been drafted. For this event the Service Co., of Holborn, have presented a solid silver challenge cup value £10. The outward journey will be made from Highgate on Good Friday, March 25th, the return being on Monday, March 28th. The marking will be on the basis of 100 marks for each journey, with a mark deducted for each minute early or late at the different checking stations.

On the Saturday a hill-climb will be held with the Harrogate M.C.C. Sutton Bank is proposed as the venue.

East Sussex M.C.

A meeting of enthusiastic motor cyclists was held at the Clifton Hotel, Eastbourne, recently, with the object of forming a club to be known as above. It was decided to hold a further meeting on Wednesday next, the 23rd inst., at 8.30 p.m., at the same place, to which all interested are heartily invited. Mr. R. G. Hudson is the hon. sec.

Oxford M.C.C.

The Rev. Basil H. Davies, president of the Northamptonshire Motor Cycling Club, will give an elementary talk on "Aeroplanes" before the members of the Oxford M.C.C. at the Creamery Café, 23, Cornmarket Street, Oxford, at 8 p.m. to-morrow (Tuesday). All motor cyclists and those interested in the subject will be heartily welcomed.

Newport (Mon.) and District M.C.C.

The first meeting was held at the Queen's Hotel last week, when the committee and officials were appointed. The attendance was good, and hopes of a strong club are entertained. Mr. J. Pritchard, Central Chambers, Newport, was elected hon. sec. *pro tem.*, and would be pleased to enrol any motor cyclists in the district.

Bishop Auckland, Darlington, and District M.C.

"Internal Combustion Engines as applied to Motor Cycles and Vehicles" was the title of a lecture delivered by Mr. S. F. Hill. It was the first lecture promoted by this club. The lecturer had an interesting and instructive set of lantern slides, and also actual models lent for the occasion by the Triumph, Rex, L.M.C., Douglas, Daimler, and Argyll Companies. A feature of the lecture was the detailed comparison between the working principles and efficiency of engines working on the two and four-cycle systems. The audience comprised about sixty members and their friends, and appreciation of the clear manner in which the lecturer dealt with the various technical details was frequently shown.

The chairman of the club, Mr. T. W. Craig, presided, and at the conclusion Mr. A. R. Poole proposed a vote of thanks to the lecturer, which was seconded by Mr. N. Dewhirst.

On Wednesday next, at the King's Head Hotel, at 8 p.m., Mr. J. Bellerby will lecture on "Benzol."

Belfast and District M.C.C. (Formerly Shamrock M.C.C.)

The A.G.M. of the Shamrock M.C.C. was held on the evening of the 10th inst., at the headquarters, Prince of Wales Hotel, Belfast, Mr. Beatty presiding.

The secretary's and treasurer's reports were read and passed, and satisfaction was expressed on all sides on the state of the accounts, which showed a balance in hand.

On the motion of Mr. Sharpe, seconded by Mr. Millar, that the name of the club be changed, there ensued a lengthy and interesting discussion, with the result that finally the motion was agreed to unanimously, the name of the club to be henceforth the Belfast and District Motor Cycle Club.

A good programme is being arranged for 1910, and riders of lightweights and heavyweights will be catered for.

The adjourned general meeting will be held at the headquarters on Thursday next, the 24th inst., at eight o'clock. All motor cyclists are cordially invited to attend.

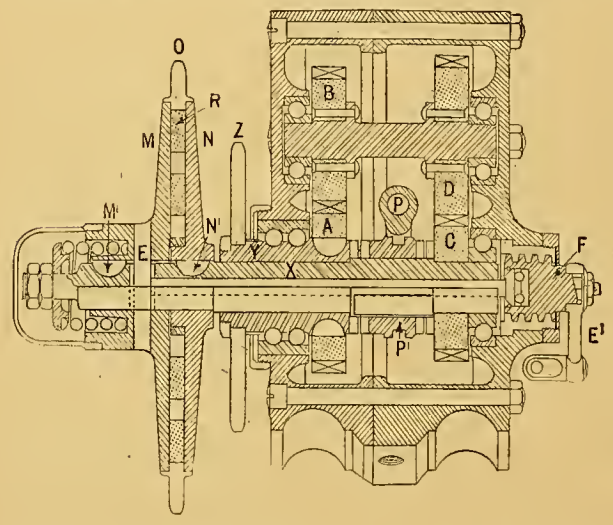
NOTICE TO CLUBS.

We would remind club committees in arranging fixture lists for 1910 that the club championship, or the M.C.C. Team Trial for *The Motor Cycle* massive silver challenge cup, is arranged to take place on Saturday, June 18th, probably in the neighbourhood of Daventry. Last year there was a record entry of eighteen clubs.

The Indian Two-speed Gear and Free Engine.

SIDECARISTS will welcome the arrival of the 7 h.p. twin-cylinder Indian with two speeds and free engine, as it is one of the few variably geared chain-driven twins on the market. The change-speed gear is a new departure in Indian practice for 1910, and is a sign of the times. 4 h.p. and 7 h.p. bicycles fitted with this gear, it is expected, will be ready for delivery in England next month. The gear, which is illustrated on this page, is of exceedingly simple design. It is on well tried lines, the principle being by no means new. The gear box is neatly fitted between the engine and rear wheel, and occupies the position of the usual bottom bracket. The clutch used in conjunction with the gear is a higher development of the compensating sprocket used on Indian motor cycles for some years.

Referring to the illustration, the four pinions A, B, C, and D are always in mesh. Gears B and D are



fixed on the counter-shaft. The engine drives by a chain from its small sprocket on to the loose sprocket O, which is clutched between the two discs M and N, cork inserts R providing the frictional surface. Both the discs M and N are keyed to the main shaft X, but while N is firmly fixed by the key N_1, M is free to slide on the key M_1.

The spring shown under the cap, on the left-hand side of the drawing, forces the disc M to the right, holding the sprocket O firmly between the two discs M and N, as already described. This forms the free engine feature of the device, and to release the clutch the lever E_1 is operated by a pedal on the left-hand side of the machine, and turns the coarse thread F, thus forcing a pin which slides in the hollow shaft X against E, so compressing the spring and freeing the sprocket O.

The central outside portion of the shaft X is squared, and upon it slides the dog clutch P_1, which has four heavy teeth on each face, corresponding with similar teeth on the pinion C and the loose sleeve Y. This clutch is operated by the shaft P, which extends through the outer case and is connected with a cross-bar, from either end of which wires extend up to the control lever on the top tube.

It is evident that if the clutch P_1 is moved to the left it locks the shaft X to the loose sleeve Y, and there will be a direct drive from the sprocket O to the sprocket Z, which latter is firmly fixed to the sleeve Y. This is the direct drive on top gear.

If, on the other hand, the clutch P_1 is moved to the right to engage with the pinion C, the drive will be from the sprocket O on to the mainshaft X, through the clutch P_1 and pinions C and D, to the counter-shaft, thence by means of the pinions B and A, which latter are firmly keyed to Y, to the sprocket Z. From Z the drive is by chain to the rear hub. The neutral position is formed by placing the clutch R midway between the pinion C and the sleeve Y.

The reduction in gearing from high to low is about one-third.

All gears and shafts are of substantial construction, with large bearing surfaces, and as the gears are always in mesh, there is no possibility of stripping them, while the teeth of the dog clutch are so cut as to facilitate engaging or disengaging when the plate clutch is released.

All shafts are carried on ball bearings, while a ball thrust washer is provided at the right end of the clutch operating pin to take up the thrust of the spring when the clutch is released. When the clutch is engaged there is no end thrust.

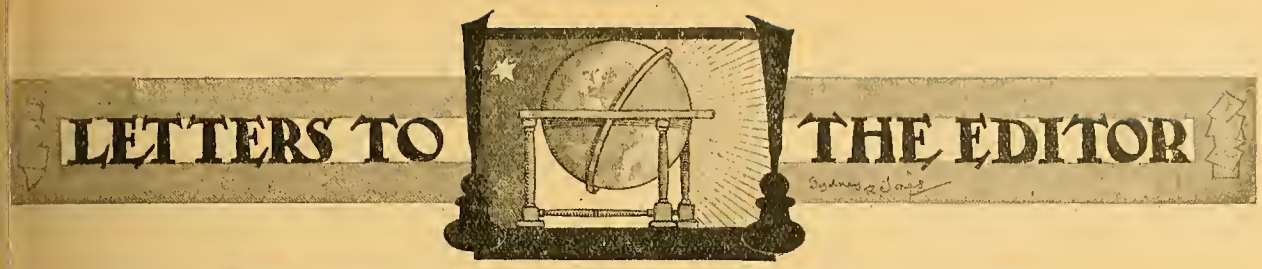
The gears are lubricated by splash, while the clutch is of the dry plate type, which is gaining such favour with car engineers.

The question of accessibility has not been lost sight of in the method of mounting the gear box, which is so cradled as to be readily and easily removed should occasion require.

A.C.U. QUARTERLY TRIALS RESULTS.

LAST week we pointed out that only one mark now separates the first eight trials competitors in the running for the silver cup. We have since received an amended list of marks awarded by the judges, but it is unnecessary for us to reprint this, as the chief alterations are the amended totals consequent upon the marks originally awarded for general excellence of design having been cancelled. The only other alterations are: F. Thomas (6-7 h.p. G.O.K.), non-stop, one hundred marks for reliability; W. G. Ayling (3½ h.p. Midget Bicar), two stops (sooted plug and ran out of petrol), eighty marks for reliability; J. Marshall (3½ h.p. Triumph), one stop (tyre trouble), ninety marks for reliability; N. C. Dear (1½ h.p. Wanderer), failed Rectory, outside time at Banbury, eighty-five marks for reliability.

In the Chancery Division of the High Court on the 4th inst. Mr. J. A. Taylor, 237, Hertford Road, Edmonton, N., who is the owner of a registered design of a dust and wind screen for application to tricars, sidecars, and trailers, secured a perpetual injunction against the Flag Patents, Unlimited, Tooting, restraining them from infringing such registered design.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Belts on Lightweights.

[4579.]—In reply to your correspondent E. McQuade [letter 4536] regarding belt slipping. The belt has slipped slightly in heavy downpours, but I have never been stopped by same. On hills I generally assist with the pedals without, however, straining myself in the least. The above applies to very wet weather. HARRY SHARPE.

A Novel Belt Tip.

[4580.]—During the belt controversy which was recently raged in your columns, I noticed several contributors were lamenting at the number of fastenings they used. It might interest them to know that during the last two years I have fought but three, those being the Stanley with adjustable hooks. For the screw I substitute a French or clout nail and copper washer. The washer is knocked down the nail with pliers very tightly (so compressing the belt in fastener), oil is then cut to size and burred—a punch is unnecessary as a sharp awl being quite sufficient. A file soon removes rubber when shortening is required. I might mention the hook end anchorage of a leather belt I used last year was not interfered with for the 1,500 miles I covered with it. Hoping this information will be of service to others,

G. WILSON.

General Recognition of Motor Cycle Records.

[4581.]—I regret to say that in the past a certain amount of discredit has been unjustly thrown upon American records, and I have been particularly careful in getting up the latest lists of records [See *The Motor Cycle* of January 31st.—ED.] to eliminate, as far as possible, any chance of error. It seems to me that it would be a desirable step for the Auto Cycle Union of Great Britain and the F.A.M. to get together once a year and publish under their authority a set of world's records for the past year. I am willing that the Auto Cycle Union should appoint a committee of reliable men in this country to go over the records, and the circumstances, places, and times in which they were made, and pass them. If they can convince me of any error, and I assure you that I am open to conviction, no one will be quicker than I to ratify it. J. P. THORNLEY,

Chairman Federation of American Motor Cyclists.

Water-cooling on Motor Bicycle Engines.

[4582.]—I have read all the correspondence that has appeared in *The Motor Cycle* regarding water-cooling on motor bicycle engines, and I am of the opinion that a water-cooled head, if it can be arranged without unduly affecting the weight or reliability, would be a great advantage, but I cannot help but think of the days when I owned a water-cooled De Dion tricycle, which was stored in a shed at some distance from my house. Whenever the temperature fell below a certain point in the winter time, I was always nervous about the freezing of the water in the radiator and head, and, despite the many advantages of water-cooling, it was a nuisance to have to run the water out. In the case of readers who have facilities for storing in outhouses or stabling where the temperature is always kept above freezing-point, it is immaterial whether air or water-cooling is employed, but I think it will be agreed that the majority of motor cyclists have not these advantages. True, a motor bicycle can be brought into a dwelling house if occasion requires, but it is an awkward thing to store in a house whose rooms are of small dimensions.

CULASSE.

A Valve Grinding Tip.

[4583.]—I thought the following tip might be of use to readers of *The Motor Cycle* regarding grinding of valves and cocks. I have been called in to explosion engines, oil, gas, and petrol, and upon examination have, with a few exceptions, found the valves are well ground in, but have no face or polish. The majority of riders seem to think that a rub with emery makes matters all right, and so it does to a certain extent, but the valve seat, which is usually cast iron, is, upon examination, scored, and distinct rings can be traced where the emery has cut deeper in one place than another. After fine flour emery and oil have been used, especially on petrol taps, the emery bites into the cock, and it is extremely hard to turn. Special attention should be paid to finishing or polishing up the seating or body of petrol and compression cocks. After a good facing with flour emery rinse off all emery with petrol and dry with cotton rag, and apply a little Globe metal polish, and finish. If properly done the grinding of a valve or cock can be highly finished in this manner, as the fine particles of the polish make a very fine grinding medium. E. ARMSTRONG.

Road Dangers at Night.

[4584.]—I have read a lot of complaints in *The Motor Cycle* regarding road dangers at night. I would like to inform some of the English motor cycle riders that they do not know what road dangers are. In this country motorists have always to keep a constant look-out for road dangers, even in the daytime.

While riding the other week I came across a flock of goats in the road; and another time, while riding from Johannesburg to Pretoria, I ran into a herd of bullocks. On both occasions there was no one in charge of the herds.

Big stones in the middle of the road are another road danger in this country. These stones are a nuisance to cyclists and motor cyclists. While riding at nights one has to be always looking about for fear of running off the road, and I have often done this. One night I ran off the road and was almost killed, for I dropped into a pit. No doubt some of your readers will wonder how I came to run off the road. Unlike England, the roads here are just made across the veldt. There are no hedges and no railings, and it is a case of finding your own road.

Now I think that if some of the gentlemen who complain of the road dangers at home could come out here, and do a bit of motor cycling, they would not be so eager to complain of the English road dangers. G. EVER.

Transvaal.

A Puzzling Case.

[4585.]—Mr. F. Lucas, who contributed the article under the above heading on January 10th, invites opinions of the cause of the singular behaviour of his Triumph machine. I do not think that the sparking plugs are entirely to blame, and am convinced that if Mr. Lucas enlarges the jet orifice to its original size his trouble will cease.

The cause of the trouble appears to be due to the adjustment of the carburetter. The mixture is evidently of satisfactory proportions when the throttle is nearly closed—when only a small quantity of air is admitted—but when the throttle is open wide a large amount of air is drawn in, but the burred up jet orifice cannot pass the requisite amount of petrol. A mixture is thus produced which burns so slowly that the power rapidly falls away and back fires and ignited petrol in carburetter the result.

This trouble is temporarily lessened by the substitution of a cleaner sparking plug as a hot spark is thus produced, and

the weak mixture fires and burns quicker, so that the troublesome symptoms are therefore not so quickly apparent. I have often experienced the same trouble with my twin, but generally there was a total cessation of firing when the throttle was opened. In my case an immediate cure was the cleaning of the carburetter jet tube.

J. F. ADYE.

American Records.

[4586.]—Replying to letter 4493, January 10th, signed "Colonial," regarding American records, I fail to see the connection between Dr. Cook and the motor cycle. However, the only country to recognise Dr. Cook's claim to Polar discovery was a European one. America waited for verification. Perhaps "Colonial" has heard of a certain Lieut. Peary, another American, who did reach the Pole, also of numerous Britishers who did not.

It seems to me that the Indian has demonstrated in England the possible accuracy of published American records; besides, it is hardly likely that audiences of several thousands would repeatedly submit to being fooled by faked records. Americans showed, some hundred odd years ago, that at that early date they were not altogether fools.

Will "we Britishers" send some of your fast machines to America and compete against the American machines, as the Hendee people have done in England? We Canadians hope so. Englishmen are usually considered good sportsmen, but it is not too sportsmanlike to be continually doubting records because you cannot make as good.

I shall look for the smiling Indian in Wells's space in *The Motor Cycle* after the first meeting between the "big 7 h.p." and some of the English machines.

Toronto, Canada. ANOTHER COLONIAL.

Lightweights v. Heavyweights.

[4587.]—Like your correspondent the Rev. R. Measures, I, too, am a clergyman and the possessor of a heavyweight. I live in a large town, and though I am young and of more than average strength, yet I find my machine far too fatiguing for daily riding in traffic, dodging about from house to house and from village to village.

Mr. Measures, no doubt, has a cure somewhere in the country where no traffic to speak of is ever encountered in his parish. Under such circumstances the heavyweight with free engine may prove suitable enough, but I wonder whether he has any experience of what it means to pay a round of calls in all weathers on a heavy machine in a very busy town day after day for, say, a year. I am afraid he has had no such experience, for he lives entirely in the country, and to this discussion he brings an experience of the country and of the country only. As a test of the superiority of the lightweight in traffic, let him journey from, say, New Cross through the heart of London to Crouch End, first on a lightweight and then on a heavy. Whatever the advantages the latter may have as a touring mount, he will certainly come to the conclusion that for dodging in and out, stopping and starting, pedalling without fatigue behind crawling vehicles, handiness and convenience, the lightweight is an easy winner.

For traffic and frequent calls one does not need a fast and powerful machine, but one which will travel at a moderate pace, and which can be pedalled along when necessary without undue fatigue. The lightweight adequately fills that want, and the fact that by far the majority of those who now ride in and out of the city every day in all weathers use lightweights is evidence, if evidence were needed, of the increasing popularity of this class of machine.

There is one assertion in your correspondent's letter which completely fascinated me. He tells us that he starts and stops as many as twenty or thirty times in a couple of miles. That works out at one stop every 117 yards! Under those conditions I would not even use a push bicycle. Mr. Measures cannot be serious. What on earth does he stop so often for? I see from the directory that he lives in a little hamlet in Sussex where for miles around one scarcely comes across one house in two miles, let alone twenty or thirty. If Mr. Measures stops so often in two miles it must be for divers other reasons. RUS IN URBE.

[4588.]—In the controversy on the above subject, I think one aspect of the matter has not been mentioned by anyone. Granted, as it must be, that the great majority of riders keep and use their machines for pleasure and long-distance riding, what does it matter, once the machine is got going, what its weight is? I have ridden (not owned) a lightweight, and, frankly, did not like the experience. I owned and used during 1908 and part of 1909 a 3½ h.p. Triumph, and, good and reliable as it is, here in hilly Devon, unless in perfect tune and new, it also has its limitations. Oh! I know the reply from Triumph enthusiasts—"Keep it in perfect tune then." But steady, my friends. I was returning last Easter Monday from a lengthy tour to Plymouth. The first part of the holiday had been blazing sunshine and dust (oh, that dust! and my poor carburetter, just fixed in the very place to take in a maximum); the last day, Easter Monday, it rained, and that finished us both. How about tuning then, my friends? It jibbed on the long hills, and I did not enjoy the last day of my holiday.

I decided then that what was wanted was more power and a two-speed gear, and I got both when I purchased an 8 h.p. Bat, P. and M. two-speed gear, and J.A.P. carburetter, and now I know what real luxury is. No longer have the most terrifying hills any terrors for me; the machine "eats them up," as the advertisement says; slow as one can wish in traffic, anything up to between 60 and 70 m.p.h.—and an enormous reserve of power. Out of tune does not trouble me any longer; I can easily tune up at home and at my leisure.

How Mr. W. H. M. Pattisson carries his dog about on his motor bicycle. The terrier sits in a light openwork basket which is suspended from a leather strap round the rider's shoulders. Mr. Pattisson says: "The dog seems to enjoy riding my Triumph as much as I do, which is saying a good deal."

Weight! What does that matter; we are out to ride, not push, and I have never had to do so yet. Half a dozen steps with the low gear in and it starts. I can start up on the steepest hill, and, by the way, if the End-to-end ride were taken from Launceston to Exeter, *viâ* Tavistock, Princetown, and Moreton Hampstead, I belive we should see something. Just take a look at the Contour Book, Mr. Editor. Anyway, the machines would have, on the first day out, as severe a testing as the most enthusiastic could wish for. I did the journey on the 3½ h.p. Triumph, and I have done it on the 8 h.p. Bat, and know the difference. I am not particularly young (shall not see thirty again), and neither am I remarkably muscular (rather the opposite); and as to my nerves, I know I have them, and doctors say that if they are in perfect condition we do not know we have such things; inference, mine are not perfect.

I have no interest whatever in the Bat Co., having purchased the machine after noticing its consistent behaviour in last year's trials, especially on the hills (my bugbear).

JAS. EDGCOMBE.

The A.C.U. Quarterly Trials.

[4589.]—I should like to inform your correspondent, Mr. Eli Clark, that I am fully aware that I had two stops in the recent Quarterly Trials, and also that I entered same on the A.C.U. card HAROLD H. BOWEN.

[4590.]—The official results of the last Quarterly Trials, as published in your issue of February 7th, abound in curious anomalies and inconsistencies, of which I should like to point out a few.

I believe it was decided, in consequence of the bad state of the road surface on Dashwood Hill, that no marks should be deducted for failure to climb it, and for the most part this idea was apparently carried out. Why, therefore, were there any exceptions made? For instance, W. Pratt (Phelon and Moore) fell off his machine on the hill, yet is awarded full (10) marks; D. R. Clarke (James) made a clean ascent, yet is only awarded 7 marks.

Again, Pratt, having failed on Dashwood, and forced to drop into his low gear to climb Rectory Hill, is accorded full marks for reliability, and credited with a "non-stop"; but F. W. Applebee, who came right through without a fault until he got within "sight of the Chequers Hotel," when his engine stopped for a moment (apparently without cause, for it started up again instantly without adjustment), is docked 10 marks under the heading of reliability.

The markings for "reliability" are most unsati factory when carefully looked into. Here is one instance: W. Cooper (Bradbury) fell on Dashwood and failed on Rectory, and loses 10 marks for "reliability," *i.e.*, 5 for each failure; Leno (P.M.C. two-stroke) side-slipped once and also failed on Rectory, yet he loses only 5 marks; Deacock (Wanderer) failed only on Dashwood through side-slip, yet is docked 5 marks on reliability. Why, I wonder, when Pratt gets full marks?

Newey (Norton) partly failed on Rectory through a slipping belt, but nevertheless was awarded 4 marks for the hill-climb. Underhill (L.M.C.) fails on Rectory, and gets no hill-climbing marks at all there. Presumably, therefore, his performance on the hill was slightly worse than Newey's; yet Underhill loses only 5 marks on reliability, while Newey loses 10. Barker (Clyde) has two stops (one engine stop and failure on Rectory), and loses 10 marks. Slaughter (Ariel) has two stops, yet loses only 5 marks. [Our correspondent here calls attention to marks awarded under the heading "General Excellence of Design," but as the committee has now decided not to award marks under this heading we have omitted this portion of his letter.—ED.]

Doubtless many difficulties crop up for the officials in these trials, but surely they are not insurmountable. Certainly, if the trials are to be worth anything at all either to the trade or the public, they will have to be surmounted, and the sooner the better.

May I suggest that the judges reconsider their figures, and present an amended report?

T. CHAS. PERRYMAN.

[4591.]—It is gratifying to note the increasing popularity of the Quarterly Trials, but a glance over the official table of results of the January Trials prompts me to ask if they are not losing their value.

One cannot compare the mark awards without realising they bear no definite relation to merit of performance. The lapses in this direction are too numerous to permit of individual mention, but when we notice under "Reliability" five marks only being deleted for two stops, and other machines penalised twenty marks for the same number of stops, and ten for but a single stop, what can one think? Also, how can one reconcile the published photograph of a fallen machine and rider with the judges' award to that rider of 100 marks for non-stop, and full marks for hill-climbing? If Dashwood were ruled out on account of bad surface, why are full marks awarded in some cases and other riders penalised? Surely all marks should have been deleted, or all riders given full marks.

Under "Ease of Starting" the table makes it appear that machines not fitted with a free engine are penalised. If this is so it is distinctly unfair, no competitor to my knowledge having had advice of this intention. It would be interesting to learn on what basis or standard the marks for cleanliness are awarded. The amount of road dirt on machine or rider cannot with justice be made to form this basis. If a rider is forced on to a particularly bad piece of road, or if he holds anything but the first place in a company of riders, he suffers. Imagine the official car passing a competitor bespattering him with mud, and then the officials penalising him. In the January Trials one competitor with ordinary motor cycle mudguards was heavily penalised, but the penalty was almost solely due to the fact of extra large tyres with effective rubber studs being fitted for comfort and safety. They were mud slingers, and he suffered. Another competitor had the forethought to fit small tyres for the job, and consequently stood high in the cleanliness list. The moral is obvious. Difficulties face the judges in this direction. I would suggest that under "cleanliness," oiltight or leaky engines, etc., only be considered, and that "mudguards" make another heading.

In my opinion it is incumbent upon the judges to give their reasons for deletion of marks in each instance, and an explanation of the apparent discrepancies in the rewards for reliability. If this cannot be done the trials (except from a sporting sense) have no value, and manufacturers cannot be recommended to spend money on them.

JAS. L. NORTON.

The Motor Cycle in the United States.

[4592.]—On reading letter No. 4561, signed "Disgusted Belt User," I find our friend discreetly omits to state the size of belts used on his 5 h.p. belt-devouring device. If he used a ⅝in. rubber and canvas belt as used on model engines and a leather belt as used on sewing machines, then I must say that he was courting trouble, whether those belts were made in England or America; but as I infer that he used a ⅞in. rubber and canvas or leather belt, then I must say that he is the unfortunate possessor of a very inflexible engine, if that engine, as he states, chews up belts (any kind—rubber, canvas, or leather—especially English) every thirty miles.

He states that the makers of English belts say that the climate of America is unsuited for English belts. Then what will the humid and torrid climate of Africa, India, Australia, New Zealand, and Canada do to an English belt? No, no, my friend, your yarn will not wash, because I have a ⅞in. Stanley Dermatine belt which has run two years, and is at the present time in the hands of its manufacturers for some little attention so as to allow it to run another year. But, then, my machine is a 3½ h.p. English machine, with transmission by an English belt, ridden by an Englishman in an English climate. Perhaps the affinity of the English prolongs the life of the belt.

My belt has run (not been wrapped up in a special wrapper) in hail, snow, rain, sunshine, and over roads such as Waddington Fells in Lancashire and Yorkshire, where no road roller can get, and over Shap, which would play havoc with chain transmission. The alignment of pulleys on my machine is perfect, the engine is flexible, and it is driven by the owner, who is not a millionaire, and who places implicit confidence in English productions.

I have not had the pleasure of using an American belt or an American motor bicycle, chain-driven or otherwise, but the letter in *The Motor Cycle* gives one the impression that the machine described by "Disgusted Belt User" would not have much chance in a 1,000 miles reliability trial, if it were belt-driven, unless one carried three spare belts and fasteners. MILTON RAWSTHOONE.

EXPERIENCES WANTED.

"C. O. M." (Co. Tipperary) would be glad of an owner's opinion of the A.C. tricar, particularly with regard to ease of steering and stability.

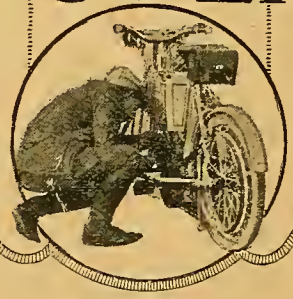
"R. B. G." (Belfast) is anxious for readers' experiences of the Douglas and Motosacoche lightweights.

"H. E. S." (Leicester) desires readers' experiences of the four-cylinder Wilkinson T.A.C.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected manuscript, drawings, and photographs will only be returned provided a stamped addressed envelope is enclosed for the purpose.

How to Overhaul a Motor Cycle



By CON-ROD.

(*Continued from page* 117.)

Carburetter.

Grind the needle in with fine crocus powder, and, having previously ascertained that the petrol level is correct, make sure that the collar actuating the balance weights is fast. If the little pivots for the balance weights, or the holes in the latter, are badly worn, they should be replaced. Wear begets wear in increasing proportion, and if it is the rider's fate to do much travelling over rough roads, it is very probable that one day he will find himself with a balance weight, and consequently carburetter, *hors de combat*.

Of course, if it did happen it would not take a very long time to repair, even on the road, with the aid of a thick pin, wire, or, even as befell the writer, a borrowed hairpin supplied by a fair spectator; but the whole object of this article is to place the motor cyclist beyond the need of such assistance. Examine the wires of handle-bar controlled carburetters, and if either is loose or broken, resolder it, keeping a slight twist on the wire while doing so. In the case of tank lever controls, very little can be done beyond using leather washers to stop air leakage, at the points where the spindle, etc., enter the carburetter, backed up, if necessary, by a spring washer to prevent rattling.

Contact Breaker.

It is not my intention to touch upon the overhauling of coils or accumulators, as these are better left in the hands of their makers. It would, however, be as well to mention in passing that a great advantage is derived from fitting a separate condenser between the platinum points of contact breaker of both plain and trembler coil systems, and also by fitting an earth wire in the case of the wipe contact breaker from the revolving disc itself to some convenient nut on the frame or engine, and in the case of the make and break type from the platinum contact which is not already wired up. The wipe contact breaker may be easily dealt with as shown in fig. 4.

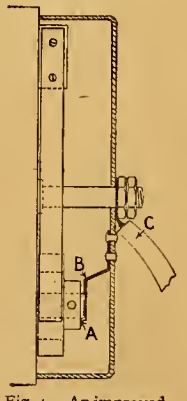


Fig. 4.—An improved "earth" or frame connection for the contact breaker.

A. Shaft carrying contact breaker.
B. Strip of brass making contact between shaft A and case.
C. Earth wire from case to frame.

The reason for adopting these precautions is that the thick dirty oil from the crank case, in lubricating the rotating parts, so coats the spindle carrying the disc as partially to insulate it when oil is cold and thick. Hence trouble when starting up and good running when hot; also refusal to fire with anything less than the full voltage. The make and break type is affected in the same way by oil getting between the contact breaker case and the part upon which it moves.

The Magneto.

In dealing with the magneto machine, a precaution which renders damage less likely, if the spindle is to be rotated, is to wire up the high-tension terminal to the magnets, and so save any strain on the armature coils. There is no reason why the spark should be forced across the safety gap merely because it exists, and many prefer not to run any risks when so simple a remedy is at hand. The majority of magneto manufacturers do not appear to have provided us with any test to indicate whether the magnets have sufficient strength for perfect results or whether they require remagnetising. The following method is therefore offered in default of a better. Connect the special Bosch magneto spanner or an ordinary sparking plug to the high-tension terminal and short the spanner (which in the case of the Bosch is just the correct length) or the body of the plug to the magneto. The points of the sparking plug must have the right gap, *i.e.*, to Bosch or other gauge. Now if a duster is wrapped round the driving wheel of the magneto it will enable a good grip to be obtained, and if the armature is now turned by hand at the same rate as one would ordinarily turn a door handle there should be a spark between the spanner and the magnets or at the points if everything is in order. For those who prefer a figure, a fair spark should occur at about 125 r.p.m. If it occurs at a less speed, so much the better. On the other hand, it does not necessarily follow that it will give a spark at this speed when the plug is in the cylinder and the space between the points of the plug is filled with gas under pressure, which causes a considerably greater resistance to the passage of the current. The platinum points should be tapped with extremely light hammer blows and filed with a special dead smooth file sold for the purpose till they meet fairly and squarely. The amount of break recommended by the makers is usually about half a millimetre (say $\frac{1}{50}$in.) Gauges are supplied by the Bosch, Simms, and other magneto manufacturers. A slight flat worn on the rubbing end of the steel rocking arm of the old pattern Bosch magneto does not have any harmful effect, but if it is badly worn, new parts are not costly; the same remark applies to the fibre ring. It is by no means uncommon to find the fibre ring worn at the point which breaks the contact in such a way as to make the break more gradual than might be desired. This may be remedied by freshening the face of the "hump" with a half-round file, smoothing it over afterwards.

How to Overhaul a Motor Cycle.—

Test both ends of the spindle for play in the bearings. If badly worn the magneto machine should be sent to its makers, as if the wear is not corrected it might cause the armature to touch the pole pieces.

Clean all carbon brushes, and see that they slide freely in their holders, not forgetting the small brush in the contact breaker plate, which bears on the brass body behind and provides an earth return. The oil wells should be washed out with paraffin, the screws at the bottom being removed to drain away the dirty oil. All superfluous paraffin should be mopped out with spills of blotting paper, and the parts replaced and stored in a warm dry place till wanted, when the oil wells should be replenished with magneto oil. Whilst on the subject of magnetos, it may perhaps be as well to mention that there are devices sold for protecting the terminals from mud and wet, but if one or other of these is not available get a short piece of rubber tube about 1½in. long and a tight fit over the insulator carrying carbon pencil and terminal. Make a small hole in the side of this just big enough to squeeze the H.T. wire through, and in such a position that, when the wire is connected up, it will help to keep one end of the tube hard up against the magneto casing. Cut the other end so as to clear the terminal by an ⅛in., and fit into it a disc of rubber, which can be cut out of an old inner tube. Clean the edges and outside of this, and solution it to an ordinary patch large enough to cover the tube. When dry carefully seal the open end of the tube with this cover, again using solution (see fig. 5). This will be found equally effective for horizontal and vertical positions, provided always that the tube is a tight fit over the insulator and the H.T. wire a tight fit in the side of the tube.

Single Cylinder. Twin Cylinder.

Fig. 5.—High Tension Terminal Protector

A. Wire to sparking plug.
B. Insulated terminal.
C. Rubber protector.
D. Cap for ditto.

With regard to magneto drives, there is not much to be said. The transmission very rarely requires attention if it has been well lubricated. See that the slots in the magneto platform fitted to the machine provide plenty of movement for adjustment and sufficient for correct alignment.

Attention to the Engine.

Clean the whole of the engine externally before taking the cylinder or cylinders off, otherwise dirt is sure to get in the crank case, which may not need dismantling. Having removed the cylinder, chip and scrape off the carbon deposit from the head with a long cold chisel or screwdriver, taking care not to damage the fins. Unscrew all removable parts from the cylinder head such as compression taps, plugs, and valve caps or a.o.i.v. seat. Scrape all these clean, so as to show the colour of the metal. Try the cylinder for wear in an oval direction with inside callipers or a micrometer. If this is as much as four of five-thousandths of an inch the cylinder should be sent to be ground out on a grinding machine; otherwise it may be allowed to pass for the present. Any serious scores on cylinder walls would also render grinding out advisable. Now measure the largest diameter of the cylinder very carefully at a point about ½in. below the top of the travel of the piston. Compare this by the aid of outside callipers and feeler gauges with the diameter of the piston across the divisions between the rings. If there is a difference of as much as twenty-five-thousandths scrap the old piston and order a new one, as the best fitting rings would give only very indifferent service under such circumstances, and would be nearly sure to break at an early date. If it is decided to have the cylinder ground out, another two-thousandths should be added to the actual measurement of the piston at its largest diameter when ordering. In cases where motor cyclists do not feel capable of making these measurements themselves they must submit cylinder and piston to the makers or one of the firms who make a speciality of grinding and fitting new pistons. Many people make a mistake in thinking that they have made a good job of fitting new piston rings when they are only just able to make them enter the mouth of the cylinder. The mouth of a cylinder receives less wear than any other part, and a ring which will barely pass it may have a gap of something like an eighth of an inch when it expands higher up in its working position. At the same time, obviously it is no use making the ring any larger in diameter, because it would not enter the cylinder at all. If this is the only trouble with the cylinder, it may be lapped out by hand with the aid of a wooden dummy covered with emery cloth. The dummy should be a fair fit in the mouth of the cylinder, and may have powdered emery and oil sprinkled on it from time to time. As the grinding goes on, the dummy may be enlarged by placing a layer of brown paper under the emery cloth. Those who have ever done any lapping out will know that much patience is also required. Should the original piston be retained, see that the sides of the ring grooves are parallel. If this is not the case the new rings will bind in the grooves, and, even if they do not break, will cause excessive friction and wear on the cylinder walls.

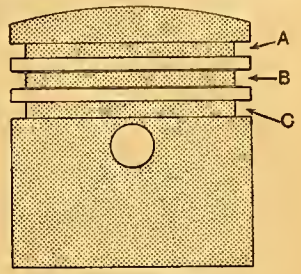


Fig. 6.—Wear on Piston.
A. Ring groove when new.
B. Badly worn groove.
C. Groove turned out to suit new and deeper ring.

A great deal is to be said in favour of step-cut rings, and wherever possible new pistons should be provided with this form. But here again a lurking danger besets the unwary who might be tempted to fit step-cut rings in an ordinary piston. They are usually about double the width of ordinary diagonally-cut rings, otherwise the steps or projections would have to be very thin and would probably break off. This means that the best you could do with a piston arranged for three diagonally-cut rings would be to turn off one of the divisions in the piston and fit a new broad step-cut ring in the broad groove thus provided, retaining one ordinary ring. I do not recommend this, as the effect, owing to the greater inertia and strength of the big ring, would probably be to shear off the remaining division or divisions, and the next time the cylinder is removed you would find all the rings stuck at the top of the cylinder. This has happened within the writer's knowledge. The divisions between the grooves should not be less than the width of the rings they retain, measured in the direction of travel.

How to Overhaul a Motor Cycle.—

Clean the Piston Inside and Out.

Make a point of cleaning not only the top of the piston, but also the inside. The accumulation of dirt here adds to the weight of reciprocating parts, and will cause the engine to be badly balanced. Withdraw the set-screws—if any—and examine the gudgeon pin for play in the lugs of the piston. If there is any undue wear, scrap the pin and have a larger one turned, as it is a hopeless thing to make a good job of it by bolstering up with the set-pins; in addition, they are sure to break away the boss if much pressure be placed on them. For a really sound job, a plain gudgeon-pin with a very slow taper—about $\frac{1}{32}$in. to the foot—cannot be beaten if it is made to bear all the way through the piston and is driven home tight. It should be made at least double the length actually required, so as to allow for fitting and grinding-in. The last time of fitting, it should be driven up tightly but firmly until there is practically no more movement, and then the big end of the pin should be cut off $\frac{1}{8}$in. from the piston. The pin should then be driven out and the small end cut off, making the total length of the pin $\frac{1}{8}$in. less than the diameter of the piston. Put a saw cut in the big end of the pin so as to know which way to knock it out. In driving it in care should be taken not to force it too far, or the piston may be distorted. Light blows are sufficient, as the wedging action of the taper will cause it to remain in position.

If the little end of the connecting rod has too much vertical play (rocking and side play do not matter in either end; in fact, to a certain extent they are necessary), it should be rebored or lapped out to suit the new pin; or, if retaining the old pin, fit a new bush. Play in the big end must be treated in the same way, except in those cases where the crank-pin requires replacement, when this should be made a little bigger and the old bush lapped out. Outside flywheel engines and others not having built-up cranks and flywheels are more easily dealt with by filing down the faces of the split brasses. Scrape out the oil holes and grooves in all bearings and moving parts, and smooth over any scratches or scores not sufficient to warrant new parts.

Main Shaft Bearings.

If plain bearings are used for the crankshaft it is a fairly simple matter to estimate the amount of wear left in them; and, even if they should be a bit slack, they may be relied upon for wearing gradually and not letting you down all at once. Make sure that the bush itself is a tight fit in the crank case. Ball bearings for the crankshaft must be treated with more care, and when once wear has taken place to any extent, they are less able to resist the hammering effect resulting from it than a plain bearing. Those accustome to plain bearing engines should remember this when dealing with the newer type. Bushes throughout the timing gear need attention, especially those supporting the exhaust valve cam wheels. The drain hole in the crank case should be about $\frac{3}{16}$in. in diameter, if it is to be of any real use in getting rid of dirt as well as oil. If the draining is effected quickly, after pedalling the engine round with paraffin in the crank case, the dirt will not have time to settle, and will be carried out in suspension. The engine pulley groove is almost sure to be worn, and should be trued up to 28° in a lathe.

Valves.

The exhaust valve usually gets a lot of grinding, and it is curious that more riders do not adopt some such simple plan as shown in fig. 7, for a two-fold reason—firstly, it greatly facilitates the process, and secondly, it saves the greater part of the wear on the valve seat, the effect of which is shown in fig. 8. Fig. 7 is merely a dummy valve seat made of hard cast-iron.

The wood pattern is exactly similar to the casting required, and, being very simple, could be made by anyone possessing mechanical ability. The pattern is best made solid, the holes being bored out afterwards. The seat may be trued up from time to time in a lathe, if required, by running a good-fitting mandrel through the valve-stem holes, placing this between the centres and putting the carrier on the end guide itself.

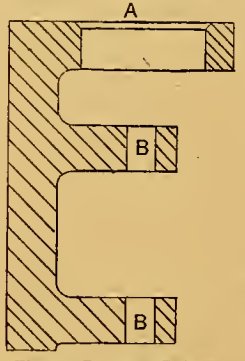


Fig. 7.—Dummy Exhaust Valve Seating.
A. The seating.
B.B. Holes for exhaust valve stem.

The dummy should be made roughly of the proportions shown in the sketch, so as not only to stand a fair amount of knocking about and reseating once or twice, but also to prevent springing when being turned in the lathe. Everyone has probably noticed that a perfect seat is obtained in the cylinder with very little grinding. All the subsequent work required to produce a good seat on the valve is wearing away and weakening the seat in the cylinder. The old valve should be ground in to the dummy first till the valve is bright all round, then grind the valve in the cylinder seat till this is also bright all round. The difference will be that very much less grinding will be necessary on the cylinder seat itself owing to the valve seat having been already ground on the dummy.

In the case of an engine used by a hard rider, and which had been in commission for three years, the cylinder seat was found to be nearly $\frac{1}{8}$in. below its proper level; hence an otherwise unaccountable loss of power. It gave just such symptoms as one frequently sees described in this paper, *i.e.*, carburetter, ignition, compression, timing, etc., all perfect. Machine will not run fast, will not climb, and overheats. Now when you consider that this valve had only about half its full effective lift, and that it was virtually opening late and closing early at the valve head—although judging by the stem it might be supposed to be absolutely correctly timed—you will easily see ample reason for bad running. Fig. 8 shows clearly the throttling effect, as the valve head was found to be very little smaller than the recess it had worn away, thus preventing any appreciable valve opening till the head had moved out of the pocket.

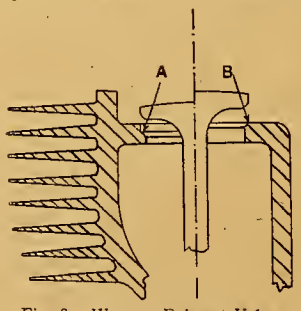


Fig. 8.—Wear on Exhaust Valve Seating through Constant Grinding.
A. Worn seat showing reduced effective valve opening.
B. Valve seat when new showing full valve opening.

How to Overhaul a Motor Cycle. —

The remedy for this evil is to bore away the valve chamber face till it assumes the shape shown by dotted lines in fig. 7; in other words, to carry on the line of the existing valve seat till it meets the valve chamber floor. The inlet valve and seat are not subject to the same wear, and rarely require any such attention, though the automatic valves in some engines are prone to enlarge the guide and get "crossed" on the seat, resulting in a blow-back through the carburetter. These valves should always be kept as light as possible, thereby saving some of the lag when opening and also enabling them to close quicker.

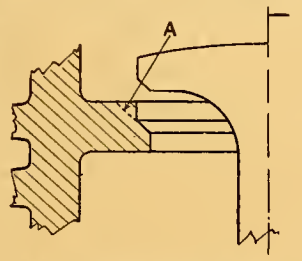


Fig. 9.—Enlarged Section of Exhaust Valve Seating.
A. Dotted line indicates the manner in which the worn seating should be turned out to increase valve opening.

Holes in Inlet Valve Seatings.

Makers are sometimes rather scanty with the holes in the automatic inlet valve seat. Enlarge these if possible, as the gas is warmed by the time it gets to them, and consequently they have to deal with a bigger volume than the inlet pipe, where it is colder.

One hears complaints about the clicking of tappets now and again, but in many cases this sound is not due to the impact of the tappet on the valve stem or in the rocker, but to play in the 2 to 1 gear, and it occurs as follows: At the end of the power stroke the exhaust valve begins to rise, taking all the back-lash out of the gear for the time being, and the two remain in steady engagement during the whole of the exhaust stroke till the cam has passed the period of rest. Then the thrust of the strong spring suddenly acts on the reverse side of the cam, with the result that it now pushes the cam in the opposite direction, and it goes over with a click and slight concussion, caused by the teeth of the gear being now engaged on the other side, proportionate to the amount of play in the gears and the strength of the spring.

Locating Noise in Timing Gears.

Fibre washers on the tappet end may partially deaden sound produced by blows struck on the stem of the valve, but they will not cause the cam gear to be one iota more silent when the noise is caused by play in the 2 to 1 gear. It is very easy to test whether the sound comes from this source or not. Wheel the machine along very slowly with the compression tap open and not using the valve-lifter. Watch the tappet very carefully, and note if, after reaching the maximum lift, it suddenly slips down a little bit before it commences the descent proper, when the click will be heard. This will prove without a doubt that the sound is due to worn or badly-cut gears. Owing to its origin, the noise is going on at all speeds until the spring fails to close the valve correctly.

Sparking Plugs.

If all old sparking plugs are kept, spares may often be fitted up by using, say, the porcelain of one with the body of another and the electrode of a third, but they should all be tested by actual use before relying upon them. The packing rings of the plugs should be attended to, as a leakage at that point renders the plug parts almost incandescent, and will make the engine back-fire and come to a sudden stop, after running some time satisfactorily, or if the throttle is opened widely. The symptoms of this are identical with those described under the heading "A Puzzling Case" in a recent issue of *The Motor Cycle*.

Importance of Compression-tight joints.

In conclusion, it is assumed that the reader will take all ordinary precautions to secure gastight joints in the cylinder head and valve seats, and oiltight joints in the crank case, when the re-assembling of the machine and engine should not present any trouble. Such information as I have given is based on actual experience, and if the jobs, in some cases, should be a little too much for an absolute novice to tackle, he will have the satisfaction of knowing how they should be done, and can see that any overhauling he entrusts to local assistance is carried out in accordance with the article and his wishes.

CHECKING IN RELIABILITY TRIALS.

AS trials hon. secretary of a motor cycling club, the question of checking in reliability trials, to which I have given considerable attention, is one I also feel sure must be of interest to a good many others in the same position. In the old days the winner of a reliability trial of, say, 100 miles was usually the rider who accomplished the journey with the least number of involuntary stops and in conformation with the rules.

Now that the reliability of a motor cycle is so well established it is necessary to adopt other means of finding a winner, and we naturally turn to the system of awarding marks for running closest to schedule time. The usual method of doing this is to allow competitors to synchronise their watches with that of the timekeeper (and checker, if any) and take their own times. This method is unsatisfactory, inasmuch as it is very unlikely that a competitor's watch will keep accurate time with that of the timekeeper.

Now we come to Mr. Scriven's system. It is a well-known fact that a motor cycle rider of real repute makes a practice of running almost to a fraction of a second when competing in a reliability trial, and, assuming for the moment that he could do so, and was suddenly called upon at any point to stop and produce his watch, he would lose an appreciable amount of time in slowing up, dismounting, and producing his watch, with the result that the time at the moment of inspection would be at least several seconds later than that at which he timed himself to arrive. On the other hand, a rider who was not so careful, and who would have passed this point at, say, ten seconds before schedule, would perhaps be credited with having lost no marks. Will Mr. Scriven kindly explain how he overcomes this difficulty, and for which I abandoned the idea? I may be accused by some of labouring on a point which is unworthy of consideration, but the winning of a reliability trial is in some cases only a matter of seconds between the competitors, and those who have had experience in organising long distance reliability trials will appreciate the difficulty.

D. E. A

EASTER MONDAY BROOKLANDS EVENTS.

THE following events will take place on Easter Monday at Brooklands:

EASTER MOTOR CYCLE HANDICAP.—Open to all classes of motor bicycles under 500 cc. cylinder capacity.

SPRING MOTOR CYCLE HANDICAP.—Open to motor bicycles fitted with engines with a cylinder capacity exceeding 500 cc. but not exceeding 1,000 cc.

The entries, fees for which will be 10s. 6d. each event, close on March 17th. Prizes will be: First prize £19, second prize £5, or a cup at option.

To encourage amateurs to compete at Brooklands the Brooklands Automobile Racing Club has decided to draw up a rule to this effect: "Motor cycles fitted with drilled cylinders or with auxiliary exhaust ports, whether covered or not, are not eligible to compete in motor cycle events." This rule will also encourage the use of standard pattern engines.

THE LONDON-EDINBURGH RUN.

SOME new regulations appear in the preliminary announcement concerning the Motor Cycling Club's annual London-Edinburgh run which should serve to make this classical event still more popular. The date is May 13th and 14th. The start is to be at 9 p.m. on Friday, the 13th, instead of ten o'clock as in previous years. The route has been altered from Newcastle-on-Tyne, and competitors will this year travel *viâ* Jedburgh and Dalkeith. The distance is fifteen and a half miles less, and threequarters of an hour less is allowed to cover the total distance, so that the average speed for the journey is about the same as last year, but the new route is rather more difficult. The earlier start and the time knocked off will ensure riders reaching Edinburgh much earlier, and the late starters and unfortunates should appreciate this. The new route will prove an interesting change for seventy-five per cent. of the members who have already won L.-E. medals.

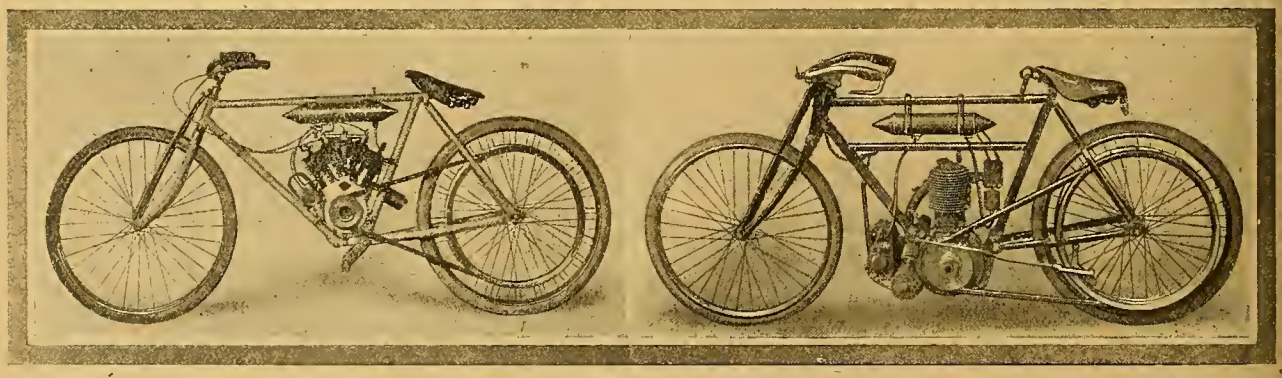
The fifteen minutes ahead of schedule rule has been retained. Some riders do not favour this regulation. Last year it will be remembered that many competitors were disqualified owing to being more than fifteen minutes ahead of their minimum schedule time at some point on the journey, and much grumbling was the result, although the rule was quite clear.

Meal coupons will again be used, as they were found a great boon last year.

Entries close at ordinary fees on April 27th; double fees will be accepted up till May 2nd.

THE LIMIT OF WEIGHT REDUCTION.

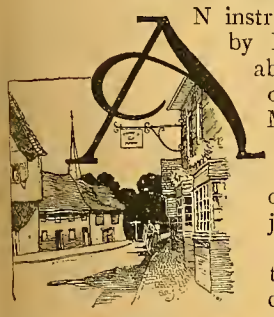
TWO standard makes of motor cycles—a lightweight and a heavyweight—are depicted in the accompanying illustrations stripped of every superfluous part to lessen weight and wind resistance for short distance speed events. The photographs are instructive, as showing the amount of accessories and parts demanded for touring purposes. In their "bared" state the machines are but two-thirds of the weight of the standard model, and are very handy and easy to manipulate. A certain section of sporting riders favour this class of mount, and they are frequently come across at important competitions. Incidentally the photographs just prove how necessary it is to separate standard from racing models in hill-climbing competitions, for imagine the immense advantage the rider of one of the above machines has against a competitor on a standard touring model weighing 40 or 50 lbs. more! In some competitions all have been jumbled together on the officials' supposition that the lightweight racer would score on time and the heavyweight on formula. This may be so to some extent, but a special competition machine would beat a heavy standard nine times out of ten on formula and on time. The chief reasons are because it is so difficult for the comparatively sluggish heavyweight to pick up speed, and especially on a gradient, whereas the nippy lightweight is in full flight before many yards are covered. There is also wind resistance to take into account, and this is far more important than is generally supposed. Last year's competitions demonstrated the futility of amateurs competing on their touring mounts against trade riders on specially built competition machines, and *The Motor Cycle* campaign against "specials" and urging standard machines in competition will no doubt have its effect in 1910 hill-climbs.



SPORTING MOUNTS FOR SPEED EVENTS.

A Moto-Reve Lightweight. A light T.T. Triumph.

Preparations for the Tourist Trophy Race.



AN instructive lecture was delivered by Mr. F. C. Bagshaw on the above subject before members of the Harrogate and District M.C.C. The lecturer was a competitor in last year's event, so that he is well qualified to dilate on the subject referred to.

At the beginning the lecturer mentioned that the ten days he spent in the Isle of Man whilst practising for the 1909 T.T. Race was one of the most delightful and at the same time the most strenuous holidays he had ever experienced, and he advised all motor cyclists who had the time to spare to enter for the event. He went on to say that he considered the last race proved the superiority of single-cylinder motor cycles. His advice was that T.T. machines should not be too lightly built (for preference the weight should be slightly in excess of the rider's), that machines should have a short wheelbase, low saddle position, and wide handle-bars, a large petrol tank with big filler cap, automatic lubrication, together with ordinary hand pump, and special care should be taken that the mudguards are firmly fixed. The tyres should be specially affixed to the wheels by the tyre maker, and the competitor should see most carefully to such parts as belts, chains, and brakes (the shoe brake on the front wheel he does not like, but, if possible, he advised fitting an internal expanding brake in conjunction with the others). Even the saddle should be carefully selected, and the silencer must on no account cause back pressure.

Suitable Apparel for Racing.

For clothing Mr. Bagshaw pinned his faith to good warm woollen vests and pants next to the skin, also a woollen shirt, thick socks, strong riding breeches with leggings, a leather waistcoat with sleeves, ordinary cloth coat, and warm thin gloves, a good body belt, strong boots, and a pair of mica goggles.

Personal training should commence at least three months previous to the race, but before commencing a strict medical examination should be first taken. Then should follow a cold plunge first thing in the morning—not, however, to be taken straight out of bed, but rather allow the body to cool a little. Dumb-bell exercise should follow for no more than a quarter of an hour, taking particular care that the breathing is attended to. After breakfast have a short spin, and then attend to the ordinary work of the day. At night another spin, a light meal, exercise for another quarter of an hour, then early to bed. Very little or no tobacco or intoxicants should be touched; plenty of cold water is recommended, and a hot bath once a week.

When practising on the course commence by going round two or three times quietly, and then once at a fast pace. Return to the hotel for breakfast, then carefully consider all the points of the course and what happened during your first ride. Each day's practice will find you increasing both your speed and distance. Do not ride much during the day, or you will have a tendency to become stale. About three days before the actual race overhaul the carburetter, magneto, valves, and bearings; see that wheels are in alignment and properly lubricated; attend to piston rings, etc. Mr. Bagshaw, of course, does not mean this to be the only supervision, but this particular supervision must be most carefully taken.

The lecturer considered the physical strain of the race far greater than the mental strain.

The Discussion.

Mr. Atkinson then asked the lecturer the following questions: What relation of bore to stroke he considered best? Did he like belt or chain drive? In Mr. Atkinson's opinion the question of valves was most serious. Did Mr. Bagshaw favour a two-piece valve, and what sort of sparking plugs?

Mr. Fawcett wished to be informed upon the question of drilled pistons, and as to whether water cooling was an advantage.

Mr. Fortune asked whether it was advisable to eat much meat whilst training.

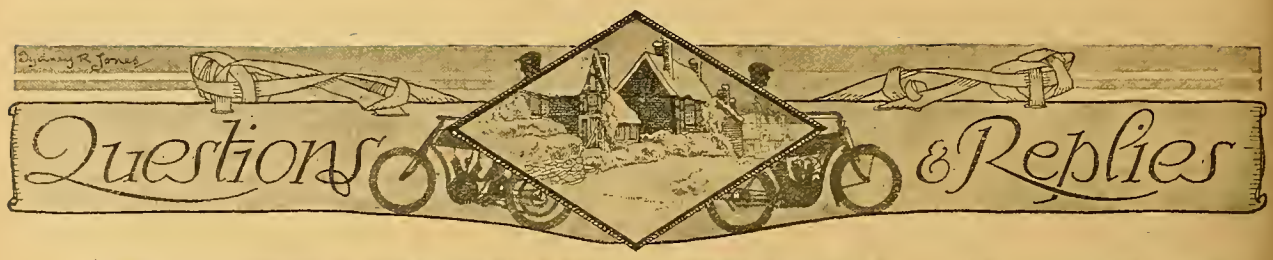
In replying Mr. Bagshaw said that he favoured an increase of stroke over bore, but only to a matter of not more than ten millimetres. He rather fancied belt drive, but thought on a wet and muddy day the slowest chain-driven machine would beat the fastest belt-driven one.

He had not had much trouble with valves, and was quite satisfied with the ones he was supplied with from a small maker. He favoured two double-pole sparking plugs fitted to one high-tension wire. The drilled pistons were for improving the lubrication, but the drilling must be done by the makers of the engine. Water cooling he did not fancy unless it did not increase the weight of the machine beyond what he had already specified, and that by not making any of the essential parts of the machine weaker. He thought whilst training the competitor should keep to his ordinary good habits with regard to food, etc. The whole race, including practising, boat fares, etc., could not be done for very much under £25.

The T.T. Winner's Advice.

Mr. Bagshaw read a letter he had received from Mr. H. A. Collier, the holder of the Tourist Trophy, which ran as follows: "I am of opinion that the race causes more mental strain than physical strain, and that the strain on the rider is greatly exaggerated, and that a course of dumb-bell exercises to tone up the muscles of the arm and wrist and plenty of fast riding, coupled with the rider's ability to tune up his machine, is really all that is necessary." He enumerates the points which in his opinion are essential to success thus: (1) An efficient and absolutely reliable machine; (2) a certain amount of ability to tune up; (3) correct riding position on the machine, so that the least effort is needed in rounding corners at a high speed; (4) a certain amount of experience in high speed riding on the road; (5) perfect health and fitness; (6) plenty of determination to ride to win and enthusiasm.

Mr. Bagshaw was heartily thanked for his very able paper, which was carefully followed by the members present.



A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Fitting a Small Sized Tube.

Is there any risk in putting my 2in. inner tube inside a 2¼in. new cover and rim? What effect would it have on patches that may be put on? —R.A.

It would not be advisable, except in a case of emergency, to put a 2in. tube into a 2¼in. cover, as it would stretch the tube to an abnormal extent, and facilitate punctures.

Belt jumping the Pulleys.

I have a 3½ h.p. Ariel, to which I have attached a sidecar, but I am annoyed with the belt jumping off. I purchased a Whittle belt, thinking that it would be an improvement, but instead, the belt flies off more frequently. I have an automatically variable pulley and free engine. Please advise me what to do.—D. I.

Either the pulleys are not true, or are out of line, or the belt does not fit the pulleys. Examine the pulleys carefully and see that they are not excessively worn, and that the correct angle of 28° is maintained with both, then there should be no trouble with the belt.

A 7 h.p. Bicycle for Sidecar Work.

Regarding the purchase of a 7 h.p. V.S. for solo and sidecar, how do you class it among the other powerful machines on the market? I want to be able to negotiate north side of Kirkstone with 12 or 14 stone passenger. Can one start engine with road wheel on the ground with the V.S. gear? and is the hub reliable and efficient? Does a 7 h.p. chew up tyres tremendously? What is the particular danger of a rigid side car at corners and on a cambered road? Does it upset?—H.W.D.

The machine in question should suit you admirably; it is one of the best powerful machines. Yes; it is one of the good points of the V.S. gear that the engine may be started by means of the pedals with the rear wheel resting on the ground. It is well made and reliable. Naturally, a 7 h.p. wears out the tyres more quickly than a 5 h.p. The secret of long wear is to obtain a tyre sufficiently large in the first instance. There is no danger with a rigid sidecar when turning corners if you take the corners at a reasonable speed, unless, of course, the sidecar is empty, when you must be more careful. On cambered roads the front wheel has a tendency to go its own way, but this is easily corrected.

Gear Ratio.

(1.) For maximum speed what gear would be most suitable for my 5-6 h.p. Bat-J.A.P., magneto, 26in. wheels? The engine is fitted with a.o.i.v., and is 1909 type, belt 1in. Would 3 to 1 be too high, or could I go a little higher? (2.) The best gear for touring purposes? I want the machine to climb all hills. (3.) I have never driven a magneto machine before. Can you kindly give me particulars as how best to control it?—J.B.O.

(1.) If you have an adjustable pulley try 3 to 1 for speed, and experiment with a slightly lower and higher gear ratios. 3½ or 3¾ to 1 (depending on your weight) would be more suitable for general purposes. (2.) This question is mainly answered by the above. Use an adjustable pulley, and you can then set your gear to more or less what you please. (3.) When driving a magneto machine you need not pay quite so much attention to regulating the spark. Leave it advanced for all ordinary purposes and control the speed by the throttle and air levers.

A Proposed Tour on the Continent.

(1.) I am thinking of taking a tour in France this spring, starting from Bordeaux, and thence working across to Avignon, and possibly on to Italy. I should be greatly obliged if any of your readers could give me any information as to the roads, or any route they may perhaps have taken in this neighbourhood. Would the journey over the Cevennes be impracticable for a 1909 3½ h.p. Triumph with sidecar and ten stone passenger? I have no objection to occasional pushing, but would not attempt the Cevennes if it means too great a waste of time. (2.) Would joining the A.A. or M.U. simplify the difficulties with regard to introducing myself and my machine into France and Italy?—J.S.M., Oxford.

(1.) Personally, we have had no touring experience near the Cevennes, which, we understand, are not very severe, but over the Italian passes you would have difficulty. In the first place, they are only open during June, July, August, and part of September, and will in consequence be closed to you, so we are afraid the only way of going would be along the Cote d'Azur. The machine would take all ordinary gradients, but it would not tackle such passes as the Little St. Bernard without a two-speed gear, as here you have sixteen miles of an average gradient of 1 in 12. Altogether we should advise you not to take the sidecar if you can manage without it. (2.) Yes, join either the A.A., M.U., or the A.C.U., the touring departments of which will give you the fullest information regarding the roads, and will also enable you to get your machine into France and Italy free of duty.

What is a Free Engine?

Please tell me what is meant by a free engine and a three-speed pulley. Does a motor cycle with a free engine start straight off, or do you have to push it for a certain way just the same?—C. V. H.

A free engine is a device for disconnecting the engine from the road wheels, so that the former can be run independently of the latter. A three-speed pulley is one of the expanding and contracting type operated by a lever which gives three different ratios, and consequently three different speeds. A motor bicycle fitted with a free engine will start from standstill after the engine has been started in the first place.

Repairing a Leaky Tank.

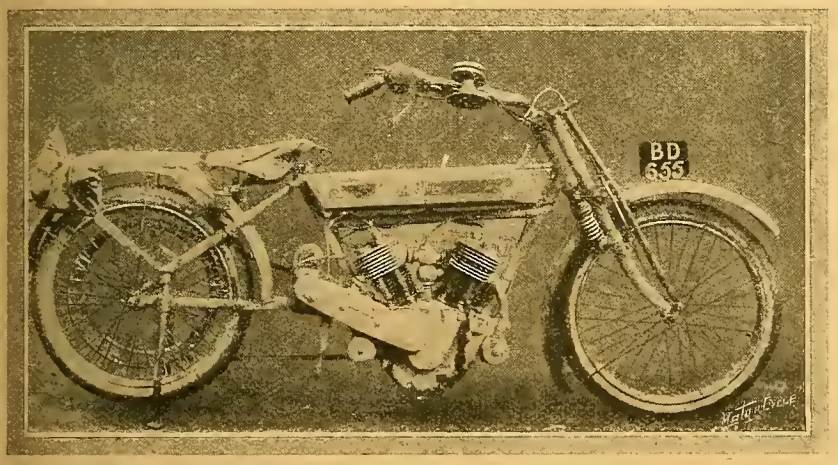
I have been greatly troubled of late through a leak which has appeared at the junction of the petrol cock with the tank. I have tried all means of preventing this that I can think of. I have tried tightening the cock, have used leather washers and lead washers, but in every case the experiment has failed. Could you advise me as to any other method of dealing with this inconvenience? I have been told that a new tank is the only thing which will remedy the defect, but can scarcely believe this.—H.C.A.

A temporary cure on the road is to wrap string around the defective joint thickly smeared with soap. The leak probably takes place at the union, which has been strained, and any repairer should be able to solder this efficiently. If, however, it is a needle valve, and the leak is due to the seating not being true, it means sending the tank to a tank maker's and letting him take it apart, as there may be no other means of reaching the seating for repairing purposes.

Running with Valve Partially Raised.

(1.) Does it strain an engine riding with the exhaust valves partly lifted, in order to go slower? (2.) I am getting a 7-9 h.p. machine, and am afraid of not being able to go slow enough in traffic. Would it be satisfactory if I had two exhaust valve lifters, and so was able to lift one valve entirely and run on one cylinder? Also would it injure the machine in any way?—F. C. M.

(1.) No, but it tends to burn up the valves or cause them to need re-grinding more frequently than would be otherwise necessary. (2.) If the machine in question is fitted with mechanically-operated inlet valves, there should be no difficulty, provided the carburetter is properly adjusted, in travelling slowly. It is not a matter of very much difficulty to adjust the exhaust lifter so that it will lift one valve before the other, so that one cylinder is cut out, but, of course, it is far more satisfactory if you can arrange it to allow the machine to travel slowly with both cylinders firing regularly.



6 h.p. twin-cylinder Clyno, with Stevens m.o.i.v. engine. This machine made a non-stop run in the Quarterly Trials, obtained full marks on Dashwood and Rectory Hills, was ridden 80 miles to Uxbridge the day before the trial, and 80 miles back the day after, all without the toolbag being opened. When one considers the atrocious condition of the roads the merit of this performance may be appreciated.

Difficulty in Starting with the Handle.

I have recently had a Roc conversion set fitted to my 1909 Triumph, since when I have been unable to start the engine up, except by letting in the high gear and running alongside. When I revolve the back axle, no matter how fast, it stops directly I drop the valve. It is quite impossible to overcome the engine compression. I have tried injecting paraffin in liberal quantities, but all to no purpose.—B. F. C.

First of all, to test whether there is anything binding in the gear or the brake band rubbing, remove the belt and try turning the live axle. If this is an easy matter, it proves that engine stiffness is your difficulty. If after injecting a good dose of paraffin through the compression tap the engine is still stiff, we can only conclude that you are using lubricating oil which is altogether too thick for the cold-weather months. An injection of paraffin along the hollow crankshaft would partly remedy matters.

Gear Ratio for a Lightweight.

I have a 1¾ h.p. Clément-Garrard motor bicycle on Chater-Lea frame. This machine I have modernised by fitting handle-bar control and several other accessories, including a large and heavy tool kit. Probably owing to the extra weight, the engine does not pull so well as formerly. Compression is excellent, and will bear my full weight—ten stones—on the pedal for two minutes. The diameter of wheels is 28in., while the diameter of the belt rim is 18in. What gear ratio should I obtain by substituting a belt rim of 19½in. on the back wheel, and would this reduction be sufficient to effect a marked improvement in running up hills and on the level?—M.A.

We should say that the trouble is due to the gear being rather too high. With a 3in. engine pulley the 19½in. belt rim would reduce the gear to about 7½ to 1, which would be a more suitable gear for so small an engine.

Concerning a Lady's Mount.

(1.) What do you consider are the most important features that should be possessed by a lady's (drop-frame) lightweight motor cycle? (2.) Could you give me a list of the various makes of ladies' motor cycles? (3.) Are 2in. tyres advisable for a lightweight?—M. B.

(1.) Ample protection of the lady's skirt from mud and grease from the belt or engine; means of preventing the engine being shielded in any way from the draught of air which cools it; also light weight, ease of starting, efficiency, and comfort. (2.) A list of ladies' motor cycles was published in "The Buyers' Guide" issue of February 7th. (3.) Yes, on account of increased comfort and freedom from trouble.

READERS' REPLIES.

Engine Not Responsive to the Throttle.

I think the following may help "A.L.L.S.": If he will thoroughly clean the gauze in the petrol strainer of his Lagonda it will probably cure his trouble. Very great care must be taken in screwing up the flange to ensure a petrol-tight joint. I found a No. 10 jet and 21 choke tube give very good results with a 10 h.p. Lagonda, and shall be pleased to give him any assistance, as I know these machines well.—H.

Engine Stiffness and Knocking.

In reply to question in your issue of the 7th inst. *re* engine stiffness and knocking, from my experience of both a 1908 Roc and a 1909 Humber I can give the following tips. Turn engine till inlet valve opens. By letting air escape this allows paraffin (I use petrol) to run in more easily. If exhaust valve is open the paraffin of course simply runs out through it. Lean machine over to left side, which allows the paraffin to run over the piston, and while doing so apply a few drops of the paraffin or petrol to the gear box. Then lean machine a little to the right side and turn engine by pulling the belt forward, which causes a slight compression in the cylinder, and so forces the petrol down to the rings. When a routine practice is made of this one does it unconsciously in a few moments, and the engine will be found to start as easily as if it were hot. Remember to oil the band brakes of gearbox every day or two. Cylinder or cycle bearing oil will do, but it loses its effect much sooner, I find, than sperm oil. Five or six drops under the high gear band are sufficient; more causes the slip which follows to continue too long. The frequent application of petrol when starting up washes away this oil gradually, and it should be renewed every day or two. Petrol is better to use than paraffin because it dries up sooner, while the frequent use of the latter makes a mess, and you may have the oil splashing on to your clothes. It is very important that the little push piece in the end of the live axle should be glass hard and perfectly smooth as to its inclined face, otherwise it will get grooved irregularly, and so interfere with the perfect application and release of the band brake. Excess of thick oil in the crank case causes stiffness quite independent of gumming, as I have found on dismantling the engine. I found the flywheels so stiff to turn that I thought the bearings were jammed, and was profoundly thankful to find that an eggcupful of paraffin poured in allowed them to revolve with freedom. Therefore use thin oil. To prevent knocking shut off almost all air on hills. Adjust level of petrol till you can give all air at high speeds on stand with a little more than half throttle. Fit a powerful coiled spring midway along the rod which operates high gear and you will not have to be constantly tinkering with the brake adjustment.—A. MACINTYRE, M.B. Ch.B.

Hints and Tips for Motor Cyclists.

By Road Rider.

CHOKE TUBES.

335. In adjusting a carburetter the choke tube is quite the most important accessory, yet many riders essay their adjustments without possessing this spare. Properly adjusted, a motor cycle carburetter should increase the speed of the engine perceptibly from the first fraction of throttle lever motion to the last, and should increase the engine revolutions smoothly as it is opened out. Many carburetters, as adjusted by their owners, give jerky gradations of power and speed, while the last third of the throttle opening makes no apparent difference to the engine. It should first be noticed that the control slides or pistons or valves work accurately and smoothly; this can never safely be taken for granted. Then the level of the spirit at the jet should be tested. Then a jet tube should be selected which gives easy starting, ample power, and moderate consumption. Finally the effects of choke tubes slightly larger and slightly smaller than the one in use should be tried. A speedometer is often of great assistance in these tests. I have just been tuning up an engine, and found that with the standard choke tube I got forty-five miles per hour on half throttle, and only forty-six miles per hour on full throttle. A larger choke tube increased the pace to fifty-one miles per hour on full throttle, and gave me a more even rise of power and speed throughout the whole range of the throttle.

FLEXIBLE PETROL PIPES.

336. Riders who have suffered from broken or cracked petrol pipes are waxing enthusiastic about the flexible pipes now fitted to some machines. These flexible pipes have much the same strain to bear as the old-fashioned rigid pipes including a triple twist, and practically the whole of the strain is concentrated at the points where the flexible pipe enters the rigid unions. After long use, the flexible pipes must inevitably give trouble at these points. I am inclined to think that it is possibly unwise to rely exclusively on a single flexible pipe, while there is no doubt that they form most desirable spares for long tours or trials, and especially on passenger machines liable to special vibrations.

THE NEW MAGNETO POSITION.

337. The new position of the magneto, high up at the back of the engine, will in certain instances create trouble through inadequate lubrication of its drive. No trouble need be apprehended with regard to the drive, as the chain links, or teeth if pinions are employed, will carry ample lubricant upwards with them, but on one or two machines employing a gear drive it is not too certain that the bearings of the shafts of the pinions will secure sufficient oil, though the teeth are safe enough. I have already seen one or two machines with which trouble is inevitable, unless small spring lid or helmet lubricators are mounted in threaded holes drilled over each shaft bearing, and receiving occasional attention from an oilcan.

MAGNETO CONDENSERS.

338. I have found some variation of efficiency in the condensers of high-tension magneto machines. Whereas several machines will run literally thousands of miles without the platinum points being given any attention another sample may require to have its points frequently cleaned, and tapped or filed flush. This difference is undoubtedly due to a faulty or broken down condenser, and in case a very poor condenser has been supplied, or the symptoms point to a broken down condenser, the magneto should be sent to the makers for attention. The engine speed is extremely susceptible to the condition of the platinum points.

LEAKY INLET UNIONS.

339. I often notice machines with serious air leakages in the inlet system, especially in the case of a.o.i.v. twins, when the riders are hardly to be blamed, as the arrangements used on some engines for attaching the domes and pipe are mechanically execrable, and it would puzzle anybody to maintain air-tight joints. Such leakages have, however, very deleterious effects on the running of the engine. The makers of certain patent carburetters used on cars occasionally refuse to fit their carburetter unless the owner agrees to allow them to supply better inlet pipe attachments. Special care is needed at two points on many motor cycle engines, viz.: (1.) To drive the inlet valve dome well down on the ground shoulder of its seating; with a twin it often happens in careless refittings that the dome of one valve is an eighth of an inch off its shoulder. (2.) At the unions between the inlet pipe and the elbow projecting from the dome. Leaks occur between the end of the pipe and the nut. A felt washer placed inside the nut, for the end of the pipe to butt up against, is a good cure.

SPARKLETS.

Stanley Show Donation.

The directors of the Stanley Show, Ltd., have for the second time sent a donation of one hundred guineas to the Cycle and Allied Trades' Association.

Catalogues Received.

We are in receipt of an artistic calendar from Mr. W. W. Bannister, motor engineer, Maidstone, the manufacturer of the Unecar recently described in *The Motor Cycle*.

The 1910 catalogue of the Clyno Eng. Co., Thrapston, is to hand. This contains illustrations of the single-cylinder 3 h.p. Clyno and the twin-cylinder 5-6 h.p., also the adjustable pulley and stand marketed by the same firm. Copies can be had on application to the above address.

A well illustrated catalogue of the Bat motor cycles is just to hand, containing excellent half-tone engravings of the famous Bat machines, which are built for both road and track. In reviewing this list, it is interesting to note that it is now seven years since the first Bat motor cycle was introduced. It is one of the few motor cycles of which the frame is sprung as well as the forks. This, combined with its unique method of magneto transmission, makes it one of the most interesting motor cycles of the day. Copies of this catalogue will be sent on application to the Bat Motor Mfg. Co., Kingswood Road, Penge, S.E.

The Transmission Question.

Chain transmission scored very heavily in the last Quarterly Reliability Trials. Five out of the first eight places were taken by one Scott, one Phelon and Moore, and three Indians, all chain-driven motor bicycles. All the above-mentioned machines were fitted with chains of Renold manufacture.

Rubber and Canvas Belts.

Rubber belts have been adopted as standard by most motor cycle manufacturers for a number of years, and it will be interesting to note that the grooved pattern rubber belt, of which the manufacturers of the Shamrock-Gloria belt claim to be the originators, was first invented and made as far back as 1903. The Hanover Rubber Co. inform us that a provisional patent was taken out by them for a grooved rubber belt, but as it was allowed to lapse the grooved pattern has been adopted by several other makers. We are informed that the grooved rubber belt was first taken up in England by the Triumph Cycle Co., Ltd., who first fitted it in 1904.

The Home Garage Sidecars.

The New Mona Cycle and Motor Co., Mona Works, Barrett's Grove, Stoke Newington, N., have acquired the sole rights of manufacturing the Bramson home garage sidecar, which was recently described and illustrated in *The Motor Cycle*.

The Exchange Business.

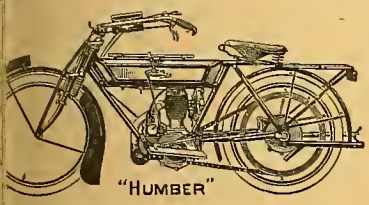
Motor cyclists in want of a second-hand machine cannot do better than visit Messrs. Wauchope, 9, Shoe Lane, E.C., or correspond with them. A few facts about the business may be of interest. In the first place, no less than fifty new machines of the leading makes are kept in stock, while there are as many as 150 second-hand machines from which to make a choice. After a customer has bought a second-hand machine he is allowed fourteen days in which to return it or exchange it for another if it is not satisfactory. When a second-hand machine and cash is to be given in exchange for a new one, a reply is sent from the firm stating the price offered for the old machine, and under no circumstances, unless the machine has been misrepresented, is a price allowed lower than that originally stated. Messrs. Wauchope have built up a big business.

IONEY TALKS.

it cash offers. Our stock of new Humbers is exhausted, and we have only a limited quantity Write for full specification of these ideal sidecar s, and we will let you into the secret of buying chines at second prices.

IUMBERS FOR EASTER.

ne of these 1909¾ two-speed Humbers, fitted with et Sidecar, and you can pass on the road cars £500. These are started by handle; you get in dle, put in the clutch, and you glide gracefully Can be driven slowly in traffic and take hills with pecial price for the combination. Remember, de- om stock.



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1909¾ HUMBERS

ew. These you can hardly tell from 1910 models, tted with improved pattern silencers, spring forks ulleys, Roc licensed two-speed gear, H. B. control ed tank, high tension magnetos, Dunlop tyres, oil perated by foot, stand and carri r, toolbag with fitted to handle-bar. Fully guaranteed.

£42 10s., or exchange, or credit.

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1909 SINGLE SPEED HUMBERS.

l new, fitted with latest pattern silencers, spring oagnetos, pedalling gear, stand, carrier, toolbag, umber plates,

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Don't Miss These.

1909¾ HUMBER two handle starting, com- with new sidecar, £45 only.

5½ h.p. Rex DE LUXE magneto, Roc clutch, han dle starting, complete with sidecar, £22 10s. only.

NEW 1909 ARNOS.

ave a few Brand New 3½ h.p. Models, fitted with os, h.-b. control, complete with tools, etc. price, £45. Our price, £32 10s. Or exchange. Cash offers wanted.

Other Sidecar Machines.

MINERVA, twin, 1908 model, spring forks	£25 10
BROWN, twin, 1908, magneto, free engine	£25 10
Twin REX, four speeds, spring forks	£16 10
Twin REX, 1908, magneto, spring forks..	£32 10
HUMBER, 1909, two speeds, soiled only	£32 10
BAT, magneto, two speeds, spring frame..	£24 10

Beautiful Solo Mounts.

TRIUMPH, magneto, etc., 1909	£35 0
TRIUMPH, 1908, Mabon free engine	£30 0
TRIUMPH, 1907, in splendid condition ..	£25 0
DOUGLAS, 1909, studded tyres, like new	£32 10
REX, 1909, tourist, soiled only	£32 10
REX, colonial model, magneto ignition ..	£12 12
QUADRANT, 1909, Roc two-speed gear..	£32 10
QUADRANT, 1908, mag., beautiful order	£25 0
MINERVA, mag., enamelled French grey	£22 10
MINERVA, magneto, splendid condition..	£21 10
N.S.U., magneto, 2¼in. tyres, low built ..	£22 10
N.S.U., 1908, magneto, splendid order....	£26 10
N.S.U., twin, 1908, magneto, two speeds..	£27 10
SPARK, vertical engine, magneto	£8 15
GARRARD spring forks, 26in. wheels ..	£8 15
MINERVA, spray, good running order ..	£3 15

We have 200 Machines in stock.

annot put all these in our advertisements, therefore or list, post free. CASH BUYERS we specially or, and we are able to allow big discounts. TO TRADE: We have a few good machines to clear each.

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h.p. REX, in good running order, complete with elt, accumulator, number-plates, etc.

£4 19s. 9d. £4 19s. 9d. £4 19s. 9d.

will reserve machine upon receipt of £1 deposit, and balance 5/- weekly.

ED, up-to-date two or four-seater car, two or four linders. Cash or exchange.

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ne 1062. **HALIFAX.** 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

4½h.p. F.N., 4 cyls., magneto, spring forks, Autoclipse lamp, splendid condition; £18.—20, Potternewton Lane, Leeds.

3½h.p. Lloyds, practically new condition, all accessories and spares; cost nearly £60, price £10.—Poole, Barrow-on-Humber.

1908 P. and M., 3½h.p., handle-bar control, castor wheel sidecar, good condition; £38.—Dearlove, Theatre, Harrogate.

1910 P. and M., new condition, ridden 50 miles; Yorkshire; £52 10s. cash, no offers.—No. 4,098. *The Motor Cycle* Offices, Coventry.

MANCHESTER Motorists can obtain Ariel, Bradbury, Douglas, Norton, P.M.C. two-stroke from official agent, Gourlay, Fallowfield.

2¼h.p. Minerva, good hill-climber, thorough running order, excellent condition; £10.—Box L1,440. *The Motor Cycle* Offices, 20, Tudor St., E.C.

2½h.p. Ariel, 1908, accumulator, spring forks, adjustable pulley, footrests, stand and carrier, spare valves, etc.; £10 10s., or good bike and cash.—44, Cleg St., Haslingden.

N.S.U., 3½h.p., magneto, spring forks, spring footrests spares, etc., splendid condition, new June, not ridden 400 miles; accept £25.—Walsh, Wood Lane, Hipperholme, near Halifax.

1907 2½h.p. Minerva, just been overhauled, re-enamelled, equal new; sell cheap, or exchange with cash modern magneto machine.—Bradshaw, Optician, Fishergate, Preston.

ROYAL Enfield Lightweight Motor Cycle, twin-cyl., magneto, mechanical valves, is on view at Stand 126, Manchester Motor Show.—District Agents, Newton and Co., 50, Blackfriars St., Manchester.

TRIUMPHS, immediate delivery, come and see me before purchasing your 1910 mount, any make supplied; second-hand Triumphs taken in part payment.—Triumph Agent, 53, Trafford Rd., Salford.

3½h.p. T.T. Premier, new October, 1909, absolutely perfect, not run 700, many spares, very fast; also 3½h.p. T.T. J.A.P., 1909, perfect condition.—Jones, Southfield, Middleton Rd., Cheetham Hill, Manchester.

1908½ Rex, 3½h.p., ball bearing engine, splendid order, not run till 1909. Watawata, variable pulley; bought twin and sidecar; seen and tried here with pleasure; £24.—Youngman, 7, Crossley St., Halifax.

3½h.p. Centaur, Renold chain drive, 20½in. frame. Palmer cords, Brooks B100, enamel, plating perfect, spring seat and fork, engine, transmission, good as new, stand, kit, spares; £12.—9, Beeton Rd., Sheffield

2¾h.p. Minerva, torpedo tank, accumulator ignition, h.b.c., new tyres and tubes, Clincher studded back, in splendid condition; £16, or part exchange for good 3½h.p. Minerva.—Rispin, 48, Chatsworth Pl., Harrogate.

READY for immediate delivery.—F.N.'s, Douglas, Scott, Triumph, Moto-Reve, twin Premier, P. and M., Bradbury, Motosacoche, Lincoln Elk, Humber; write for lists; cash or exchange.—Hitchen, 163, Euston Rd., Morecambe.

1909 Triumph, 1,500 miles, two Palmer cords, one Clincher, Autoclipse lamp, generator, horn, watch, N.A.B. pillar, all spares, perfect power and pace, good condition; £58; secure bargain before rush.—Holmes, 32, Agar St., Bradford.

OLDHAM and District Motorists please remember the sole agent for the Bradbury motor cycle is Parry, 68, George St., Oldham, where the 1910 model can always be seen and tried. We have a few 1909 models at clearance prices. We have the winner of the Snaefell Hill-climb, price £35; 1908 3½h.p. Bradbury, magneto, spring forks, perfect order, £25; 3½h.p. Minerva, £15; 3h.p. Quadrant, £10; 2¼h.p. Kerry, splendid condition, £6; 3h.p. Excelsior, perfect order, £7; 3½h.p. Humber, free engine, good order, £12; the 3½h.p. 1910 Bradbury always in stock for immediate delivery; good allowance in exchange; tyres, tubes, horns, belts, carburetters, and all motor requisites.—Parry, the Oldham motor man, 68, George St., Oldham.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

3h.p. Alldays, good order, h.b.c., good tyres; £12.—Johnson, Claypit, Whitchurch.

1909 Triumph, in splendid condition, only twice punctured; £35.—Williams, Bodolwyn, Bala.

TWIN Fairy Lightweight, 2¾h.p., Palmers, fine condition; £12.—Hall, Richard St., Northwich.

1910 Triumph, absolutely new; must sell; £45 10s., spot.—Red Bull Hotel, Kidsgrove, Staffs.

TRIUMPH, 1909, Tourist Trophy model, practically new, only six months old, lovely condition; £39.—Moss, Wem.

ARIEL, 3h.p., January, 1909, h.b. control, 26in. wheels, spring forks, very fast, reliable, all accessories; £18; bought 1910 Premier; photo.—Doody, Castle Foregate, Shrewsbury.

2½h.p. J.A.P., No. 6 Chater-Lea frame, Palmer (ribbed), Bosch magneto, spring forks, Brooks B105, spare belt, accessories, as new; £18.—Webb, Excise Office, Shrewsbury.

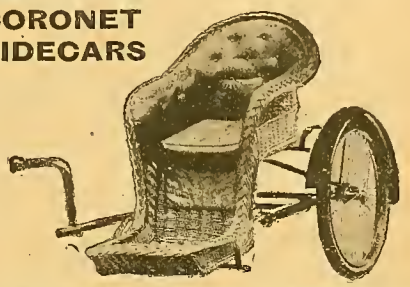
OUR GREAT PRODUCTION

enables us to offer high-class sidecars at low prices.

Quality the highest.

£4 17s. 6d.

CORONET SIDECARS



Before buying a Sidecar, send for illustrated circular explaining the advantages of "CORONET" Sidecars over other makes. Delivery from stock to suit Minervas, Rexes, N.S.U.'s, Triumphs, and any other make. Attached in three minutes.

Price £4 17s. 6d. Discount to trade.

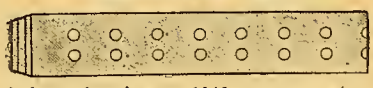
CORONET ADJUSTABLE PULLEY.

12/6

The best variable speed pulley on the market. Loose flange securely held in any position by a simple yet ingenious contrivance. Gear can be altered without the aid of spanners, lock ring easily operated by hand. Buy a "Coronet" pulley and gear your machine suitable for hill-climbing.

Standard makes, such as Rexes, Triumphs, Minervas, supplied without the necessity of sending old pulley for pattern. **Discount to trade.**

"GRIPSKIN" BELTING.



Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

§in., 10d.; ¾in., 11d.; ⅞in., 1/1; 1in., 1/2.

Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

NEW DUNLOP AND CLINCHER COVERS.

24 or 26 or 28×2in.	17/-
24 or 26 or 28 x 2¼	17/6
24 or 26 or 28×2¼in.	18/-
Clincher Tubes, all sizes ..... each	4/11
28×2 or 2¼in. Dunlop Wired Covers ..... "	11/6
24×2¼in. Clipper-Reflex Beaded Covers .... "	14/6

Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from 59/6

Your old coil and acc. taken in exchange.

CARBURETTERS.

BROWN AND BARLOW. AMAC.

Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters.

OLD CARBURETTERS BOUGHT.

MISCELLANEOUS.

De Dion Car Frame, wheels, differential	£3 10s.
New Water-cooled Cylinder M.O.V., 81 mm. bore	19/6
Six good Plain Coils .....each	3/3
Dozen good Trembler Coils .....each	7/6
Mudguards and Stays 3in., 2/11, 4in.,	3/6
Silent Silencers for engines to 5 h.p.	3/3
Long Handle-bars, well plated	5/6 and 6/6
500 Fuller Midget Trembler Coils	17/6
200 Fuller Plain Coils (your old coil taken in exchange)	10/6
250 Mirror Lens Lamps, with generators	14/9
50 Pairs New X'lall Spring Forks, latest	15/-
Longuemare, Minerva, F.N. carburetters .... each	5/6
Osborne Four-speed Gear, fit Rex	35/-
Albion Free Engine Clutch, fit Rex	29/-
New Powell Hub two-speed Gear, cost £11	£5
Good Forecarriage, complete, with tyres.....	£2 19s.
Light Car Frame, with springs and wheels	£2 10s.
Norman Two-speed Gear, nearly new	£2 5s.
New Twin Antoine Cylinder.....	20/-
New Amac Carburetter, handle-bar control	17/6
Second-hand pair XL'All or Matchless Spring Forks	9/6
De Dion Two-speed Gear Box, nearly new	£2 5s.
Low tension Magneto suit car	27/6
New Pistons, 81 mm. diam.	3/6

BOOTH'S MOTORIES,

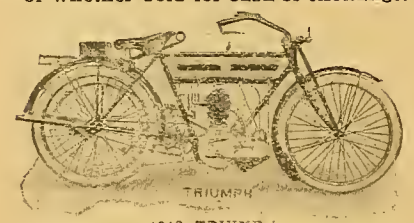
CHARLES STREET (off Square Road), HALIFAX.

Telephone 1062.

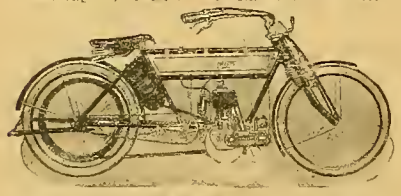
MAUDES' MOTOR MART

HALIFAX AND LONDON

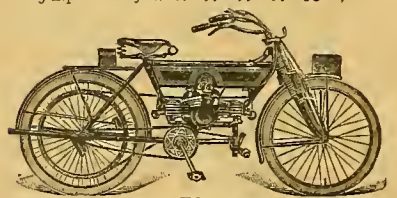
Sole Yorkshire Agents for the T.A.C. Motor Cycle de Luxe
Sole London Agents for the NORTON.
Sole Halifax Agents for TRIUMPHS, DOUGLAS, PHELON MOORES, BRADBURYS, etc., etc.
Every 1910 model we sell or offer for sale carries the makers' full guarantee regardless of whether sold for cash or exchange.



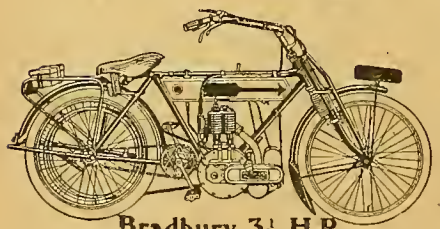
1910 TRIUMPH.
Standard model £48 15
Tourist Trophy model £50 0
Free engine, £6 6s. extra. Earliest deliveries.



NORTON.
3½ h.p. single cylinder .. .. 43 gns.
4½ h.p. single cylinder .. .. 45 „
5 h.p twin cylinder .. .. .. 53 „



DOUGLAS.
Model B.. .. .. 36 gns.
Model C.. .. .. 38 „



Bradbury 3½ H.P.
1910 Standard model £48 0
Delivery from Stock.

T.A.C. Motor Cycle de Luxe.
Wheel or handle-bar steering, 65 gns.
Discount to cash buyers.
"VS"—5 h.p., £55; 7 h.p., £57; 3½ h.p., £49.
Two-speed gear, £10 extra.
MOTO-REVE.—1¾ h.p., 27 gns.; 2 h.p., 36 gns.
Delivery from stock.
F.N.—2¾ h.p., two-speed, £40; 6 h.p., four-cylinder, £50.
PREMIER.—3½ h.p. single, £47 10s.; 3½ h.p. twin, £52.
LISTS POST FREE FROM
MAUDES' MOTOR MART,
Powell Street, HALIFAX.
'Phone: 433. Telegrams: "Petrol, Halifax."
136, Great Portland Street, LONDON, W.
Phone: 552, Mayfair. Telegrams: "Abdicate, London."

MOTOR BICYCLES FOR SALE.

5 h.p. Twin Peugeot, h.b. control, spring forks, new back tyre and belt, perfect order in every detail; £15.—Moore, 22, Vicarage Place, Walsall.

5-6h.p. F.N., 4-cyl., Dunlop studded, latest improvements, splendid order; £28.—Geo. Collier, Repton, Derbyshire.

MOTOSACOCHE, as new, only ridden 200 miles, spring forks, magneto, Brooks B105 saddle and bag, carrier, several spares; £27 10s.—Richard Evans, Motor Garage, Newport, Salop.

ROYAL ENFIELD, 4h.p., h.b. control, adjustable pulley, lamp, horn, carrier and stands, re-enamelled and plated, equal to new; accept £15, lowest, worth double.—28, Needwood St., Burton-on-Trent.

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

TRIUMPH, 1909, run 1,200 miles, as new; £37.—Wilkin, Welholme Rd., Grimsby.

2½ h.p. Werner, good, low, powerful; a genuine bargain. £8 8s.—Long, Crowle, Lincs.

3½ h.p. Quadrant, magneto, best condition; £21.—Pooley, 13, Melville Rd., Coventry.

1909 3½ h.p. Rex, splendid order throughout; £26.—Lloyd, Victoria Terrace, Leamington.

1909 4-cyl. 5-6h.p. F.N., not run 500 miles, and equal to new; £38.—1, Stratford Terrace, Nottingham.

5 h.p. Twin Indian, not done 100 miles; no reasonable offer refused.—H. Eykyn and Sons, Engineers, Kenilworth.

DOUGLAS, late 1909, only used three months, splendid condition; lowest 28 guineas.—Fryer, Long Sutton, Lincolnshire.

V.S., 7h.p., 1909, two-speed gear, free engine, splendid condition, adjustable pulley, Truffault tyres good, belt new; £50.—D.N.P., Springfield, Uppingham.

F.N., 1909, 5-6h.p., h.b. control, footrests, fine running order and condition; only want seeing; bargain, £33.—Holroyd, Warwick Av., Earlsdon, Coventry.

VINDEC, 1907, 5h.p., Palmer cords, new belt, spare belt, valves, lamp, horn, enamelled blue; £22 10s., condition perfect.—Wilson, 58, Calthorpe Rd., Edgbaston.

MOTOR Cycle (Minerva), 3½h.p., bought June, 1909, Bosch magneto, handle-bar control, studded tyre, quite new; bargain, £25.—64, Tilton Rd., Small Heath, Birmingham.

2¾h.p. F.N., new wheels, new tyres, new S.G. belt, adjustable pulley, footboards, new accumulator; £12 10s.; wanted, forecar attachment.—Moore, 44, College St., Long Eaton.

IVAN B. HART DAVIES wishes to sell his End-to-end Triumph, 85 by 88 engine, two gallon tank, special handle-bars, spare butt-ended tube, all tools and spares, lamp, horn, etc., run 2,000 miles, as good as new; £40 cash.—Apply, I. B. Hart-Davies, Bank St., Rugby.

HUMBER and Ariel, latest models, single speed and variable gears, studded tyres, Brooks best saddles fitted, complete, lamp, horn, spares; £45 and £50; liberal exchanges.—Evans, Agent, Sparkhill, Birmingham.

FIRST Cheque £17 secures 3½h.p. Advance, h.p. control, 1910 B. and B. carbretter, Advance adjustable pulley, Watawata belt, nearly new Palmer tyres, and tank, Ukantes stand, complete with lamp, watch, tools, good set overalls; owner going abroad.—MacManns, Hanuington, Northampton.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

1909 5h.p. Twin Rex, new; £36 10s.—Peake, Ipswich.

N.S.U. Lightweight, magneto, as new; £16 10s.—Cox, Ash Leigh, Ellisley Av., Cambridge.

3½h.p. N.S.U., 1908, Palmers, magneto; bargain, £12 10s., or offer.—Riddelsdell, Hadleigh, Suffolk.

3h.p. Minerva, new except tyres, Palmers, low, fast, powerful; bargain, £11.—Riddelsdell, Hadleigh, Suffolk.

2¾h.p. Bat, De Dion engine and carburetter, Watawata belt, car back tyre, splendid order; bargain, £11.—Riddelsdell, Hadleigh, Suffolk.

WHAT Make Motor Bicycle do you fancy? We can supply and give early deliveries. We have actually in stock new Triumphs, Premiers, and Bradburys, cash or instalments.—Parker and Son, St. Ives, Hunts.

5h.p. Vindec, two-speed, 1907, specially fitted Brown and Barlow carburetter, expanding pulley, Brooks pan seat, Whittle belt, extras include Autoclipse lamp, spare new belt, new spare outer cover, five butt-ended tubes, spare pulley and carburetter, perfect; reason for selling bought car; best offer.—K. Caldwell, The Lodge, Corpus Christi College, Cambridge.

MAUDES' MOTOR M

HALIFAX AND LONDON

List of good Second-hand Motor Cycles for immediate disposal.

Cash, Exchange, or Deferred Pay
Good allowances on Push Cycle

510 **REX DE LUXE,** 1908 model, 3½ h.p., B magneto, spring forks, Cantilever seat, 26 x 2 Palmers, two speeds, Roc clutch, handle start An exceptional bargain .....
514 **BROWN** 2¾ h.p., magneto, spring forks, han bar control, Palmers, fine running order, clear at .....
423 **CLYDE** 2¾ h.p., vertical engine, Bosch magn M.O.V., B. and B. carburetter .....
112 **SINGER** 3 h.p., vertical engine, magneto, model, Continentals, handle-bar control .....
520 **TRIUMPH** 3½ h.p., brand new, 1909 model, guaranteed. What offers?
561 **MINERVA,** 1909 model, 3½ h.p., magneto, Min spring forks: like new .....
550 **LINCOLN ELK** 3 h.p., Palmers, 1908 model, low built. A bargain .....
424 **MINERVA** 3½ h.p., vertical engine, B. and carburetter, M.O.V., free-engine clutch, very order .....
290 **ZENITH** Bicar, Fafnir engine sprung frame, speeds, handle starting, B100/4 saddle, very order .....
232 **KERRY** 5 h.p., twin girder forks, low built, 2 wheels, very good condition .....

MACHINES in stock at HALIFA

N.S.U. 3½ h.p., brand new, magneto ignition, Union tyres, two brakes, all improvements .
BRADBURY 3½ h.p., 1910 model, Druid spring fo magneto ignition, standard throughout .....
N.S.U. 5½ h.p. Twin, Peter Union tyres, brand n magneto, etc., all improvements .....
MOTO-REVE 2 h.p., magneto ignition, spray ca retter, h.b. control, spring forks, Continc tyres, etc. .....
MINERVA 4½ h.p. Twin, B. and B. h.b. control buretter, 26in. wheels, machine in splendid dition .....
N.S.U. 3½ h.p., 1908, 2½in. tyres, spring forks, vari pulley, good tyres, etc., etc. .....
HAMILTON 4 h.p., Amac h.b. control carburet long handle-bars, 26in. wheels, Ar condi throughout .....
TRIUMPH 3 h.p., spring forks, h.b. Amac con carburetter, good tyres, two brakes, etc.....
SINGER 3 h.p., Phelon and Moore two-speed g Druid spring forks, Brooks B100 saddle, han bar control, magneto ignition .....
N.S.U. 3½ h.p., Roc two-speed gear, 26 x 2¼in. ty spring forks, etc. .....
REX 2¾ h.p. Lightweight, magneto ignition, A carburetter, good tyres, standard specificat and 1908 model .....
QUADRANT 3½ h.p., accumulator ignition, Long mare carburetter, Whittle's belt, spring fo Lycett's saddle .....

All subject to being unsold.
Any machine reserved for fourteen days against of 20/-

N.S.U. MOTOR CYCLES. N.S.U.

We have still a few N.S.U.'s to clear at excep low prices, as below—

	Cash.	Deferred Payments.	List Prices.
3 h.p.	£25	—	£39
3½ h.p.	£31	£33	£42
3½ h.p.	£37	£39	£52

All brand new and perfect, and fitted with Ma ignition.
Fullest particulars upon request.
Send for our lists of **Accessories and of Secon Motor Cycles.** We can almost guarantee to s money.

£5 and your push cycle secures:

Humber 2¾ h.p.	**Quadrant** 2¾ h.p.
Minerva 2¾ h.p.	**Minerva** 2¾ h.p.
Bradbury 2 h.p.	**Minerva** 2 h.p.

Subject to cycle being in good condition.

TRICARS AND CARS.

PRUNEL Car, 20 h.p., side entrance, four cylin speeds. Bang up to date. Clear at £130.
PHOENIX Car, 8 h.p., two cylinder, two spee seater, good tyres. £42.
REXETTE Tricar, 5½ h.p., two speeds open fram cooled, very good condition. £32.
QUADRANT Tricar, 5½ h.p., two speeds, open air cooled. £15.
HUSBARD Tricar, 5½ h.p., water cooled, two Chater-Lea gear box, perfectly sound. £26

MAUDE'S MOTOR MA

Powell Street, Halifax.
'Phone, 433. Telegrams, "Petrol, Halifax
136, GREAT PORTLAND ST., LONDO
'Phone, 552 Mayfair. Telegrams, "Abdicate, L

OTOR BICYCLES FOR SALE.

SECTION VI.

oestershire, Herefordshire, Radnor, Brecknk, Monmouth, Glamorgan, Carmarthen, rdigan, and Pembroke.

TRIUMPH, 1908, perfect, not done 2,000, spares; £30. -Masefield, Priory, Ledbury.

CT (two-stroke), Matchless, Moto-Reves, and Premier twins for immediate delivery; cash or exn.—Withers, 64, High St., Stourbridge, Worcs.

SECTION VII.

ester, Oxford, Buckingham, Berks, Vilts, and Hants, and Channel Islands.

9 3½h.p. Rex, ridden 300 only; cost £46, £33 secures.—Eastleigh, Cookham Rise, Berks.

RO-REVE, 1909, stand-carrier, adjustable pulley, extra air slide, etc.; £23.—Beale, Hamble, Hants.

ES and Eyles, opposite Town Hall, Oxford.—1910 Premier motor cycles, twins and singles, in stock; 7 Os.

ELSIOR Motor Cycles; immediate delivery; payment by instalments arranged.—Parker's Motor rd, Oxford.

1h.p. Twin-cyl. Fairy Lightweight, excellent condi- 2 tion; £8 10s.—J. S. Willway and Sons, Ltd., St. ugtine's, Bristol.

TRIUMPHS, 1910 models, immediate delivery; sole agent for Salisbury district.—E. J. Longman, ist on, Salisbury.

B. 3½h.p., almost as good as new, £15; Excelsior, ½h.p., good order throughout, £6.—Ernest Mathew, High St., Fenny Stratford.

9 Vindec 5h.p. Twin, footrests, R.O.M.'s, little red used, first-rate condition, complete; £30.—Dennis Lodge, Newport Pagnell, Bucks.

N. 3½h.p., powerful, unscratched, new August, ridden 200 miles, magneto, spring forks, two tyres, extra; £30.—Shephard, Waldemar, Earley, Reading.

Bat-De Dion, h.b. control, just enamelled and lated, tyres new, low, and perfect running order; 17 or exchange lightweight.—51, Castle St., Bristol.

Moto-Reve, twin-cyl., magneto, practically new, nly ridden a few miles, perfect order and condi- on £27 10s.—J. S. Willway and Sons, Ltd., St. Augusine, Bristol.

ZETTE, new last October, mileage 500, 3½h.p. J.A.P. engine, magneto, Gradua gear, speedometer, ut- ose lamp, spare tube, tools, etc.; £40.—Methuen, M. Revenge, Portsmouth.

TRIUMPH-J.A.P., late 1909, special ball bearing J.A.P. engine, 4h.p., Bosch magneto, h.b.c., very w. p to 60 m.p.h., in perfect order; owner wants in £32, near offer.—Tod, Liphook, Hants.

9 Twin Premier, been ridden about 250 miles, condition as new, horn, Lucas lamp and generor, ares had very careful use, good reasons for sellg; ost £55, accept £45.—Below.

9 Triumph, excellent condition, fittings and spares, only done 400 miles; bargain, £45.—Below.

9 Douglas, had very little use, good as new, splendid hill-climber, new in January, spares; any asy able trial; £33.—Below.

9 Triumph, perfect condition throughout, spares; elo any reasonable trial or examination; £35.—

RIS, Holywell, Oxford, for new and second-hand motor bikes.—Further particulars of the above aches and second-hand list on application.

SECTION VIII.

ford, Essex, Middlesex, Surrey, Kent, a Sussex.

4 cyls., perfect condition; bargain, £21.—Locke, raper, Penge.

p. Minerva, perfect condition; £14 10s. — 41, 4 Calton Rd., Dulwich.

9 Roc, 4h.p., magneto, two speeds, as new; £30.— 17, Algarve Rd., Wandsworth.

DBURY, 2¼h.p.; £8; good going order.—Marhall, 29, Church Rd., Guildford.

—Humber, 2¾h.p., Dunlops, chain drive; great bargain.—283, Clapham Rd., S.W.

NIX Cob, magneto, two speeds, late model; 16 uineas.—11, Strathville Rd., Earlsfield.

p. Brown, low, 26 by 2¼ wheels, etc., good order; 4 £9.—4, Maple Terrace, Surbiton.

ERVA, 4¼h.p., twin, M.O.V., spring forks, footboards, perfect order; £16 16s.—Below.

4½-5h.p., 4-cyl., latest, magneto spring forks, early new, unscratched; £28.—Below

4½h.p., 4-cyl., magneto, spring forks, excellent rder; sacrifice £25.—Below.

MBER, 3½h.p., spring forks, 26in. wheels, runs well; cheap, £7 15s.—Whittles, Ltd., Motor Exhar Earlsfield. 'Phone, 711 P.O., Wimbledon.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

SPECIAL BARGAINS.

3 h.p. HUMBER, spray, free engine	£10 10
3 h.p. BRADBURY, long and low	£10 0
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. STEVENS, h.b. control, band brake	£13 10
3 h.p. CLYDE, high tension magneto, spring forks	£14 10
2¾ h.p. KERRY, light and low, spray	£9 10
3¼ h.p. REX, 22 frame, re-enamelled, trembler	£7 10
3 h.p. BEESTON-HUMBER, spray	£9 10
3½ h.p. WERNER, used with passenger	£13 10
2¼ h.p. Light ARIEL, low build, 26in. wheels	£8 15
2¾ h.p. LLOYDS, vertical, spray, non-skid	£6 0
2 h.p. F.N. SAROLEA, untested, spray	£4 5
3½ h.p. EXCELSIOR, h.b. control	£6 0

Monster list on application. Cash offers considered.

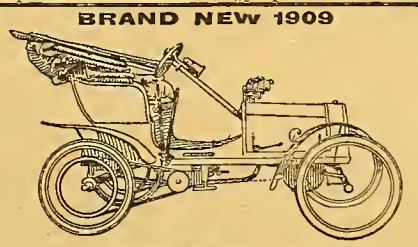
Five 5½ h.p. TWIN REXES, spring forks, long bars, low frames, aluminium finish, blue lines, 26in. wheels..... **£16 10**
Good sidecar machines. Exchanges or easy payments.

EASY PAYMENTS.

5/- weekly and reasonable deposit secures any of these machines. All tested and ready for the road.

2¾ h.p. Bradbury	£10 0	2¾ h.p. Kerry	£9 10
3 h.p. Clyde	£15 0	2¼ h.p. Ariel	£9 13
3 h.p. Ariel	£10 0	2¾ h.p. Werner	£8 10
3 h.p. Humber	£10 0	3½ h.p. Werner	£13 10
3¼ h.p. Rex	£10 10	2¾ h.p. M.M.C.	£9 10
3½ h.p. Lloyd's	£7 10	2 h.p. Humber	£8 10
3½ h.p. Rover	£14 0	3 h.p. Bradbury	£10 10
2¾ h.p. Minerva	£9 10	3½ h.p. Excelsior	£9 10

BRAND NEW 1909



5½ h.p. **O.T.A.V. VOITURETTES**, complete with hood, lamps, tools, and spares, **£60**. Dual ignition £6 extra.
Exchanges considered.

SIDE-CAR MACHINES.

1909 Two-speed Twin REX DE LUXE	£39 0
1909 5 h.p. TWIN REX, nearly new	£32 10
1908 Twin Tourist REX, magneto	£26 10
1908-9 four-cyl. F.N., fine condition	£25 10
1908 REX DE LUXE, mag., extra good	£29 10
1907 Twin magneto REX, spring forks	£20 0
1907 5½ h.p. Twin REX, spring forks	£16 16
5 h.p. Twin SAROLEA, excellent order	£14 14
5½ h.p. REX DE LUXE, Roc clutch, magneto	£24 10
6 h.p. Twin ANTOINE, extra good, R.O.M.	£18 10
Twin CLEMENT, spring forks, spray	£9 14

"POPULARS."

1910 3½ h.p. Magneto TRIUMPH, 500 miles	£42 15
1909 TRIUMPH, magneto ignition	£34 0
3½ h.p. brand new TRIUMPH Magneto	£43 10
1909 3½ h.p. Magneto REX, nearly new	£32 10
1909½ 3½ h.p. REX Speed King, as new	£35 0
1909 3½ h.p. two-speed HUMBER	£32 10
1908 3½ h.p. mag. PHELON & MOORE, 2-speed	£31 0
1908 3½ h.p. Magneto REX, special machine	£24 10
1908 3½ h.p. 2-speed REX DE LUXE	£30 0
1908 MOTO-REVE, Druid spring forks	£20 0
3½ h.p. Magneto QUADRANT, spring forks	£24 0
4 h.p. ANTOINE, high tension magneto	£18 18
3 h.p. Magneto SIMMS, 2½in. Palmers	£16 10
3 h.p. ?INGER, V belt, h.t. magneto	£16 10
1907 3½ h.p. QUADRANT, spring forks	£16 10

1909 REXES 1909

Brand New and fully guaranteed.

1909 3½ h.p. Tourist REX	£35
1909 3½ h.p. REX DE LUXE, two-speed	£45
1909 5 h.p. REX DE LUXE, two-speed	£48

1910 REXES. From £42. **Liberal Exchanges.**
Deliveries from Stock of all Models.

1910 DE LUXE SIDECARS.

Special detachable fittings, no second adjustment required, 26 × 2½ tyre, art cane or best wicker body.
£5 17 6. Illustrated pamphlet on application.

New large size LYCETT'S motor saddle	9/6
1910 Spring Forks, fit all Rex machines	39/6
Old forks allowed for. Illustrated Pamphlet on application.	
Brooks Broo Saddle	12/6
Dunlop and Cincher Tyres	17/-
Clipper-Reflex Tyres, specially good	17/6
Tubes with valves—all sizes	4/11
New Amac Carburetter.... 19/6. B. & B.	25/-

MOTOR BICYCLES FOR SALE.

TRIUMPH, 1909, just like new, little ridden; £36.—53, Kingsley Av., West Ealing, London.

3½h.p. Chater-Lea Auto Moto, perfect; £7 10s. — Smith, 16, Triangle, Bishop's Rd, Fulham.

1908 3½h.p. Ariel, accumulator, splendid condition; £16.—4,097, *The Motor Cycle* Offices, Coventry.

BAT, 3½h.p. J.A.P. engine, tyres perfect, guaranteed; £21.—P. Janson, 95, Claremont Rd., Highgate, N.

HAMPSTEAD.—£5 upwards allowed on cycles in part payment for new motor cycles, any make.

HAMPSTEAD.—Ariel, 3½h.p., good condition, all accessories, new Palmer tyre; bargain, £10.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Rex, 3½h.p., tourist, 1910, latest model, only run few miles; special bargain, £39 10s.

HAMPSTEAD.—Lincoln Elk, latest, 1909, 3h.p., splendid condition, with all accessories; £18.

HAMPSTEAD.—Triumph, 1909, splendid condition, studded tyres, all accessories; special bargain, £33.

HAMPSTEAD.—Triumph, 3½h.p., late 1907, new tyres, splendid condition, all accessories; £25.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting; easy payments taken, 5 per cent. extra.

HAMPSTEAD.—Douglas Twin, late 1909, only shop-soiled condition, all accessories; £28.

HAMPSTEAD.—Douglas, 1909, twin, magneto and spring forks, splendid condition; £24, bargain.

HAMPSTEAD.—Douglas, 1910 model C., only run few miles, unscratched; splendid bargain, £33.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; no extra for easy payments.

HAMPSTEAD.—F.N., 4h.p., late model, splendid condition, all accessories; £22, special bargain.

HAMPSTEAD.—F.N., 4½h.p., latest model, handle-bar control, condition splendid, with accessories; £24.

HAMPSTEAD.—F.N., 5 to 6h.p., late 1909, 2¼ tyres, R.O.M., splendid condition; £29, cost £51.

HAMPSTEAD.—F.N., 4-cyl., brand new, latest model; £39, with latest improvements.

HAMPSTEAD.—Peugeot, 7-9h.p., late 1909, very low, condition like new; cost £60, take £28 10s.

HAMPSTEAD.—Fafnir, 3½h.p., M.O.V., very low, Chater-Lea frame, all accessories; £13.

HAMPSTEAD.—Minerva, 3½h.p., late 1909, magneto and spring forks, handle-bar control; £26.

HAMPSTEAD.—Moto-Reve, new condition, 1909 all accessories, spring fork and magneto; special bargain, £23.

HAMPSTEAD.—Moto-Reve, latest 1909 model, only shop-soiled condition; special bargain, with all accessories, £26.

HAMPSTEAD.—Minerva, 3½h.p., just enamelled grey, splendid condition, handle-bar control; £11.

HAMPSTEAD.—Rex, 1908, 3½h.p., magneto and spring forks, very low, splendid condition; £17.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Reves, Bradbury, Humber, etc.; exchanges or gradual payments, 5 per cent. extra.—Rey, 5, Heath St. Tel.: 2678 P.O., Hampstead.

1909 3½h.p. Triumph, run 2,500 miles, perfect order, all tools, accessories; £36.

3½h.p. Triumph, winner quarterly trials, January 31st, ridden by Mr. Whitham, perfect condition, as new; £32 10s.

1910 Triumph, Premier, F.N., and Moto-Reve; instant delivery; best prices in exchange; send particulars.—Batchelor and Co., Clarence St., Kingston.

J.A.P., 3½h.p., magneto, overhead valves, stand, carrier, spare tube, valve, tools; £15 cash only; bought 8h.p. same make.—Below.

TRIUMPH, 3½h.p., 1907, tyres, etc., perfect; £21.—Seen at Pond's, 349, West End Lane, Hampstead, N.W.

5h.p. Twin Vindec, magneto, Truffault forks, in good condition; £25.—Palma, 78, St. Mary's Rd., Faversham.

1907 Triumph, 3½h.p., magneto, new July, 1908, splendid condition; £25.—Morriss, 139, Finchley Rd., N.W.

4h.p., magneto, spring forks, h.b. control, perfect running order; 14 guineas.—W. Hyne, Brunswick Sq., Camberwell.

6h.p. Twin Antoine, magneto, perfect order, complete, spares, accessories; £20.—29, Eccles Rd., Clapham Junction.

3½h.p. 1907 Magneto Triumph, new pulley, belt, and tyre; £27.—Herring, 23, Carysfort Rd., Stoke Newington, N.

1909 Lincoln Elk, 3½h.p., magneto, all latest improvements; £35, or offer.—35, Romilly Rd., Finsbury Park, London.

MOTOR BICYCLES FOR SALE.

3½h.p. Rex, 1908, magneto; £16 10s.; seen by arrangement; good condition.—Hatton, 11, Speldhurst Rd., Chiswick.

3½h.p. Vindec Special, Bosch magneto, brand new Dunlops, new belt, spares, in first-class condition; £18.—A. Staples, Woking.

3h.p. Humber, perfect condition, 26in. wheels, Dunlops, a complete machine, ready for the road; £8 10s.—130, Brixton Rd., S.W.

1909 5h.p. Special Twin Rex, enamelled grey, condition as new; only wants seeing; bargain, with spares, £29 10s.—16, Haverstock Hill.

7h.p. Vauxhall three speeds and reverse, equal wheels, 2-seater, in running order; to clear, £14.—Nye's, 69, Leather Lane, Holborn, London.

F.N. Lightweight, splendid little machine, ready to ride away; bargain, £7 10s.; by appointment.—227, Underhill Rd., E. Dulwich.

TRIUMPH, 1909, splendid condition, Clincher tyres, Autoclipse lamp, complete with all accessories; £36.—Pine, Victoria Rd., Guildford.

NYE'S!—Special bargain, 1910 6h.p. Speed King Rex 1909 frame, magneto, specially built for Mr. A. G. Fenn, guaranteed; £52 10s.

NYE'S!—4h.p. Roc, two speeds, 1909 engine and B and B. carburetter, magneto, Whittle belt, horn spare belt, valve, tubes plug, etc., guaranteed; £22 10s.

NYE'S!—2¾h.p. Humber, tree engine, cost nearly £70, good condition and running order, mileage 1 600, recently overhauled; best offer over £10 accepted.

NYE'S!—Special bargain. 2¾h.p. Brown, magneto, Davison's tank, with gauges, spring seat, spring forks, guaranteed; £17 17s.

NYE'S!—1910 Moto-Reve, only used for trials, etc., Continental tyres, lamp and generator; £35.

NYE'S!—1909 5h.p. V.S., two speeds, magneto, Riches detachable tubes, guaranteed; best offer over £38 taken, a real bargain.

NYE'S!—Many other bargains. If you want to buy or sell try 69, Leather Lane, Holborn, London. 'Phone, 6299 Holborn.

1910 Triumphs, Humbers, and Bradburys; instant delivery; liberal allowances on second-hand machines.—128, High Rd., South Tottenham.

3h.p. N.S.U., magneto, smart machine, in excellent condition; £16 10s.—128, High Rd., Tottenham.

2h.p. Twin Moto-Reve, new engine, heavy back tyre, as new; £20.—128, High Rd., Tottenham.

2¾h.p. Kerry, low built, splendid goer; to clear, £7 15s.—128, High Rd. Tottenham.

2h.p. Quadrant Motor Cycle, as new, 150 miles to the gallon; £6 10s., or near offer.—Thorne, Ashtead Surrey.

3h.p. Twin Werner, very low and light, Michelin tyres, spring forks; £10 10s.—6, Vale Av., Tunbridge Wells.

BRADBURYS, 1910, from stock, cash or exchange; agents for North-west London.—Gardner, High St., Hampstead. Tel.: 2085 P.O., Hampstead.

J.A.P., 2½h.p., fast, engine like new, 24 by 2, spring forks; £6 10s.—Freshwater House, Packington Rd., S. Acton.

REX, 3½h.p., low frame, Dunlop, handle-bar control, powerful adjustable pulley, will take sidecar.—Trow, Balaam St., Plaistow.

1907 3½h.p. Minerva, only wants seeing, perfect condition; ride 25 miles to purchaser; £15 15s.—88, George St., Croydon.

£12, or nearest offer.—Midget Bicar, in good condition, 3h.p. Fafnir, two good accumulators.—Back, 25, Moresby Rd., Upper Clapton.

3h.p. Quadrant, reliable, spring forks, new accumulator, spare tyre, good running order, just overhauled; £8 10s.—103, Gladstone Rd., Watford.

1908 Triumph, handle-bar control, perfect condition and running order, little used; £30.—Lieut. Theobald, R.A. Mess, Woolwich.

£10.—4½h.p. Automotor cycle, Longuemare, long bars, low position, in good going order.—Standen, 82, Amersham Vale, New Cross, S.E.

2¾h.p. Kerry Motor Cycle, very fast, grand machine, in perfect order, tyres nearly new, non-skid back; £13.—26, Birchdale Rd., Forest Gate, E.

N.S.U., 3h.p., magneto, exceptionally fine condition, will drive any reasonable distance to prospective purchaser; £18.—5, Beverley Rd., Chiswick.

IF You Want Bargains in second-hand motor cycles you can get them at Wauehope's, 9, Shoe Lane, Fleet St., London (just off Ludgate Circus).

MOTOR Bicycle, the Clarendon, 2¾h.p., new, shop-soiled; to be sold for £15, or near offer, great bargain.—Webster, 10, Dover Rd., Folkestone.

3h.p. Fafnir-Phanomen, magneto, mechanical, low, fast, footrests, lamp, tyres excellent, new rings; £16, offers.—Gordon, Linden Chase, Sevenoaks.

3½h.p. Minerva, 1908, magneto, spring forks, non-skids, h.b. control, adjustable pulley, perfect condition; £20.—Duncan, 62, Norroy Rd., Putney.

ROC, 4h.p., magneto, Roc clutch, low frame, excellent condition, too powerful for owner; seen any time; £15.—R.C., 23, Princes Rd., Holland Park, W.

Farrar's Motor Works,

Square Road, HALIFAX.

Telephone 919.

SIDECAR MACHINES.

1908 3½ h.p. TRIUMPH, Roc 2-speed gear	£35 0
1908 Twin REX, magneto, very low	£25 0
1909 5 h.p. Twin REX, fine machine	£32 0
1909 ditto, quite new, unused	£36 0
6 h.p. Twin REX, Roc 2 speeds	£22 0
1909½ Twin REX Racer, lovely goer	£35 0
1909½ 3½ h.p. REX Racer, soiled only	£32 10
1908 Twin REX, magneto, h.b. control	£26 0
6 h.p. Twin REX, spring forks, 26" wheels	£16 10

Any of the above fitted with one of our new Sidecars for **£4 17s. 6d.** extra.

SOLO MOUNTS.

3 h.p. VINDEC, Bosch magneto	£16 0
1910 3½ h.p. REX, slightly soiled. Offers wanted.	
1910 3½ h.p. PREMIER, twin-cylinder	50 Gns.
1909 3½ h.p. REX, R.O.M. tyres	£30 0
1908 3½ h.p. REX, almost like new	£22 0
1908 3¾ h.p. GRITZNER, mag., free engine	£18 0
1908 REX Lightweight, fine condition	£17 0
1907 3½ h.p. REX, lovely goer, very smart	£15 15
3½ h.p. N.S.U. magneto ignition	£15 0
3½ h.p. REX, M.O.v. spray	£10 10
3½ h.p. 1906 REX, M.O.V., spring forks	£14 0
3¼ h.p. REX, Bosch magneto, fine goer	£16 0

LIGHTWEIGHTS.

1908 N.S.U. Lightweight, Bosch magneto	£17 0
1909 MOTOSACOCHE, soiled only	£24 0
1908 REX Featherweight, magneto	£18 0
Twin-cylinder FAIRY, very smart	£14 0

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Clarendon .. £9 | 3½ Centaur, M.O.V. £9
3½ h.p. Rex .. £9 | 3½ h.p. Rex, M.O.V. £11

5½ h.p. O.T.A.V. VOITURETTES, complete with hood, lamps, tools, and spares, £60 each. Magneto ignition, £5 extra.

FARRAR'S HALIFAX SIDECARS.

£4 17s. 6d., complete with best tyres. Guaranteed 12 months. An ideal winter attachment, quite rigid. Good, stylish, and comfortable. No side-slip. Beautifully sprung on double C spring. Approval anywhere. Send for descriptive circular. Don't buy until you have seen ours.

For a few days we will accept your old sidecar or trailer in part payment.

ACCESSORIES, ETC. Get my Lists. Pounds Saved.

	s.	d.
Montgomery flexible sidecar	80	0
6 h.p. Water-cooled Engine	99	0
2¾ h.p. Standard Engine	35	0
Fullers charging Battery	15	0
"XL-ALL spring forks, per pair	9	0
Clincher Rubber-studded Covers, 26 x 2¼	29	0
Few ditto Dreadnought, cheap.		
26 x 2¼ Lomax Detachable Non-skids, new	15	0
28 x 2 or 2¼ Dunlop Wired Covers	11	6
Motor Cycle Bags, shop soiled, each	2	6
"Hella" Gas Lamps with separate generator	14	6
"Camel" V Belting, ¾in. or 1in., per foot	1	3
Latest pattern Plated Handle-bars, drop ends	5	6
Three-note "Fanfare" Horns, very penetrating	7	6
Minerva, Longuemare, F.N., and N.S.U. Carburetters	5	0
Clincher Tubes, all sizes, with valves	4	11
1910 Brown ane Barlow Carburetters, h.b. control	28	0
1909 Amac Carburetters, h.b. control	19	6
Forecar Attachment, 26in. wheels	30	0
Premier High-tension Magneto, new	59	6
Loop Frame for vertical engine	30	0

Get our Price List. Remember we are the cheapest firm alive. "Small profits and quick returns" is our motto. High-class machines wanted. Cash wait ng.

MOTOR BICYCLES FOR SA

4½h.p. Minerva Twin, spring forks, two accu Watawata, trembler coil, first-class condit guineas.—88, Shepherd's Bush Rd., Hammersmit

3½h.p. Triumph, beautiful condition, adjustabl two new belts, lamp, horn, all spares an £32.—Clement Cady, 18, Allison Rd., Hornsey,

2¾h.p. De Dion, not done 300 miles since and rims, Brown and Barlow h.b. car new last August; £4.—99, Southbrnge Rd., Cr

N.S.U., 5½h.p., magneto, spring forks, splendi tion; buying car.—Full particulars to A. ridge, Madifer House, Chancelot Rd., Abbey Woo

CHATER-LEA Sidecar Machine, 6h.p., t speeds, clutch, chain drive, practically ne or solo mount and cash.—43, Kilmorie Rd., For

3½h.p. Atelier, tyres, belt, and plating in splen dition, first-class running order; £9, or Harvey, Hudson, and Co. (next George), S. W

2½h.p. Minerva Engine, Royal Enfield frame, brakes, Palmer cord and Clipper tyres; ride; trial; price £7.—P., 74, East Hill, Dartfor

3½h.p. Quadrant Nala two-speed, R.O.M. back front, excellent passenger machine; owner F.N.; £15, or offer.—N. Lambert 24, Tite St.,

MOTOSACOCHE, accumulator, splendid comm cut-out, stand-carrier, new belt and spar or offers; appointment.—Ventura, 16, Newman

BEGINNER'S Chance.—2h.p. Minerva, good order, coat of enamel would make good able machine; £5 15s.—61, Lilliesha Rd., C

1909 Triumph, delivered in May, Cowey spee head lamp, generator, spares, horns, and a series, little used, in perfect order; £38.—Donald Triug.

2¾h.p. Chater-Lea, Kerry engine, Clincher tyres, Barlow carburetter, ¾ belt, long bars, h thoroughly overhauled; 10 guineas.—736, Hollow London.

3h.p. Quadraat, good condition, spring forks, seat-pillar, two Lithenode accumulators, and Grose studded tyres; £11.—Marshall, 86, St. Rd., Peckham.

2h.p. Universal Longuemare, Palmer and Cont Brooks, Whittle's belt, Price's, all good co bought higher power; £6.—Holman, 86, Gra Bermondsey, S.E.

2¾h.p. Kerry, low position, 26in. wheels, splen dition, Peter-Unions, spare valves and tyr Fullers' Premier plain coil, brand new, 9s.—27, well New Rd., S.E.

1909 Two-speed Twin Rex de Luxe, brand crate, with 1910 carburetter, handle-bars, etc., all tools; delivery this week; 40 guineas ne South Lambeth Rd., S.W.

2½h.p. Century Lightweight, spring forks, £5 Minerva, long bars, low seat, perfect, £6 Bat, very low and fast, £10.—Smith, 16, Bishop's Rd., Fulham.

3h.p. Scout, Chater-Lea frame and fittings, new tyres, detachable joint tubes, complete set parts, guaranteed in excellent condition; £16.—Earl's Court Gardens, S.W.

3½h.p. White and Poppe, magneto, Bates tyres carburetter, Advance adjustable pulley, go dition; £16 10s.; no offers.—A. Vaugham-Jo Southill Park, Hampstead.

3½h.p. Linon, vertical spray, trembler, goo footrests, powerful and reliable; bargain, part exchange push bike, or lower power.—Sadgr Ennismore Av., Chiswick.

BARGAIN.—2¾h.p. De Dion, Dermatine belt Amac, handle-bar control, Chater No. 6 fra fast and economical, guaranteed no trouble; offers.—69, Forest Rd., Leytonstone, E.

8h.p. J.A.P.-Bat, M.O.V., J.A.P. latest carb J.A.P. adjustable pulley; cost £63 few ago; not ridden 500 miles, guarantee perfect as ne cash only.—Gardiner, 68, East St., Chichester, Sa

TWO 1909 5h.p. Twin Rex Tourists, new last cantilever seats, R.O.M. tyres, only ridde miles, lamps, horns, spares; great bargains, £3 £25.—Redland House, Carshalton Rd., Sutton,

4h.p. Twin Werner, handle-bar control, polishe tank, just overhauled and enamelled, splendi £15; Montgomery flexible sidecar, newly upho £5; all tyres almost new.—Mason, Grand Hotel bourne.

3½h.p. Givaudan, magneto, 28in. by 2in. Palmer carburetter, Sharp's silencer, all handle-b trol, Bowdens levers, Brooks saddle, very low, as new; £18; by appointment.—30, Queen's Terr John's Wood.

5½h.p. Rex Twin, magneto, spring forks, Coat non-skid (back), lamp, pump, two toolbags, mirror, horn, stand, carrier, magneto cover; £2 trial; appointment.—H. B. Williams, Hookstile, Godstone, Surrey.

3½h.p. N.S.U., B. and B. carburetter, with b trol, hand and footbrakes, spring forks handle-bars, stand, carrier, and all accessories tyres, machine in splendid condition; any appoi or trial; £18, or nearest offer.—Underwood, Deep Stag Lane, Buckhurst Hill, Essex.

In answering these advertisements it is desirable to mention "The Motor Cycle."

...TOR BICYCLES FOR SALE.

...TWEIGHT. 2h.p., like new; £11 10s.; very low. ...b. control.—2, Burne St., Edgware Rd., N.W.

...ERVA. 2½h.p., 1907, spring forks, low seat handle-bar control, B. and B. carburetter, non-id...ark; £12.—Williams, York Lodge, Sutton.

...UMPHS.—Two 1908 3½h.p., beautifully kept plat... ng almost as new, lamps, spares, Shamrock rubber idd tyres, everything good; reasonable offers ac... pt; bargains; also two S.G. belts, 8ft. by ¾in., new. ...ich.—Marlow, 11, Borthwick Rd., Leytonstone, E.

...p. Kerry, Chater frame, low, h.b. control, B100. ...2 trembler, footboards, dropped bar, splendid con... ...e three pulleys, all spares, Lucas Acetyphote, horn. ...res good, Model Course back; £13 cash or plus ... with sidecar.—9, Winter Av., Southend-on-Sea.

...GAIN.—1909 5h.p. Rex de Luxe, Roc clutch, and ... two-speed gear; cost 53 guineas; purchased in ...very little ridden; it has same belt and plugs, also ...purchased with machine, treads hardly worn; any ...ination here; no approval; cannot ride; 38 guineas. ...obbs, 132, George's Rd., Holloway, N.

...p. N.S.U., magneto, two-speed gear, £26; Triumph ... 1908, Mabon clutch, £30; 5h.p. V.S., twin, two... ...Hub gear, free engine, and Millford castor wheel ... £43 10s.; 2½h.p. N.S.U., 1909, twin lightweight ...8 0s.; 2½h.p. Minerva, handle-bar control, £14 10s; ...Bradbury, 1909, £29 10s.; 3½h.p. N.S.U., mag... ...18 10s.—Eagles and Co., High St., Acton.

SECTION IX.

...rset, Devon, Dorset, and Cornwall.

...OR Cycle, single or twin, magneto; all replies ...swered.—R. Holloway, Fleet St., Torquay.

...UMPH and Motosacoche, 1910 models in stock, ...ash, exchange, deferred payments.—Dan Guy, ...eyouth.

...p. Quadrant, late 1907, good hill-climber, spring ...2 forks, Palmer tyres; £18.—"Oakville," Hartley, ...ymouth.

...3 Fairy, twin-cyl., lightweight, 2½h.p., spring forks ... new condition; £14, or nearest offer.—B. Good... ...College View, Mutley, Plymouth.

SECTION X.

...ol...nd.

...p. Wolf, with 1909 magneto, h.b. Amac; cheap.— ...D. Scott, Castlecary, N.B.

...9 Bradbury, cannot fulfil agreement; sacrifice £5. ...—4,105, *The Motor Cycle* Offices, Coventry.

...1910, two-speed, lightweight; immediate delivery ...om stock; catalogues post free.—Rossleigh, Ltd., ...ndwick Place, Edinburgh.

...UMPHS, 1910 standard, or free engine models; ...mediate delivery from stock; catalogues post free ...eigh, Ltd., 32, Shandwick Place, Edinburgh.

...2-8-9h.p. Bat, magneto, spring frame and fork, new ...res, new belt, all spares, splendid condition; above ...e immediate purchaser.—Box L1,349, *The Motor* ...Offices, 20, Tudor St., E.C.

...CLAND'S Largest Motor Cycle Firm.—Rex, V.S., ...Indian, Moto-Reve, Phelon and Moore, Zenith ...s, Roc, Griffon; we stock all these, and can supply ...er make.—Alexander's Motor Exchange, Lothian ...inburgh.

SECTION XI.

...el...d and Isle of Man.

...5½h.p. Rex, 1906, new Michelin back; cheap, £8.— ...2 Castello's, Wellington Quay, Dublin.

...MINERVA, 2½h.p., in good order, suitable for beginner. ...Surface carburetter, tyres practically new; £12.— ...Hynes, Pettigo.

TRICARS FOR SALE.

...ER Tricar, 9h.p., splendid condition; bargain.— ...ush, Wells Rd., Bath.

...Antoine Tricar, open, wheel steering, tyres new; ...16.—147, High Rd., Wood Green.

...GAIN.—Rexette tricar, seats two, good condition; ...5.—Waite Bros., Menston, Wharfedale.

...IBER Tricar, 4h.p., free engine, perfect; £17, or ...change motor cycle.—Sharpe, Mildenhall.

...½h.p. Tricar, as new, only run 300 miles; must sell; ...£18.—1, Frome Rd., Westbury Av., Wood Green.

...RETTE Tricar, 5½h.p., w.c., 3-seater; £15.— ...Beardmore, 100, Clifton Hill, St. John's Wood, ...W.

...½h.p. Quadrant Tricar, two engines, good running ...order; offers, or exchange.—Barclay, Campbeltown ...rgyshire.

...3½h.p. Raleighette, two speeds, water-cooled, perfect ...condition, spares, tools; £30, or near offer.— ...Bridge House, Kendal.

...OLIAN Tricar, 4½h.p., w.c., M.O.V., Kent three ...speeds, electric lamp, horn, good order; £22 10s.— ...06, Garratt Lane, Wandsworth.

...h.p. W.C. Contal Tricar, two-speed and free engine, ...magneto, 1910 Amac, Continental steel studded ...tyres, just overhauled and re-enamelled; £30, or offer. ...Harry, Hudson, and Co. (next George), S. Woodford.

Collier's Motories,

37, Park Cross Street, LEEDS

(facing Town Hall),

OWING TO REMOVAL WE WISH TO CLEAR THE FOLLOWING

1910 3½ h.p. TRIUMPH, PLATE CLUTCH, not done 50 miles, owner gone hence £51 10

Brand New 1909 TRIUMPH, 3½ h.p., a decided acquisition at £44 10

Brand New 1909 TWIN REX DE LUXE, two-speed, magneto, spring forks and seat, Roc clutch, handle starting, non-skid tyres, and the ideal sidecar mount, 5½ h.p. £48 0

Brand New 1909 3½ h.p. REX DE LUXE, as above, take you everywhere (and bring you back) £45 0

Brand New 1909 3½ h.p. TOURIST REX, five to fifty miles per hour £35 0

1910 V.S. MOTORS, all models, exchanges with good class machines from £49 0

1909 TWIN REX DE LUXE, two-speed, Roc clutch with sidecar, second-hand, but practically equal to new, 2½in. R.S. Clincher Dreadnoughts, 1¾in. belt, and will do 45 m.p.h. with twenty-four stones up; a regular knock-out £47 10

1909 REX SPEED KING, used in last Tourist Trophy, a really fast single, 1910 Amac adjustable jet carburetter £37 10

1909 3½ h.p. Two-speed HUMBER, spring forks, magneto, Roc clutch, 1910 Amac, Dunlops, a machine that will climb £34 10

1909 3½ h.p. TOURIST REX, another specially good mount, low built, fast, and a model of reliability £33 0

3½ h.p. P & M., magneto, two-speed, spring forks, good condition, low cash bargain £31 0

1908 Racing REX, 24in. wheels, exceptionally low, yet comfortable, has done 60 m.p.h. on Brooklands £30 0

1908 5½ h.p. TWIN REX DE LUXE, with Roc clutch, magneto, handle starting, rider sprung front and rear, a good mount for sidecar £29 10

1908 3½ h.p. N.S.U., in really splendid condition, 24in. wheels with good tyres, very cheap at £25 0

1908 TWIN TOURIST REX, 26in. wheels, spring forks easy starter, Bosch magneto, stand and carrier £27 0

1908 Four-cylinder F.N., Bosch magneto spring forks, special mud-shields for all-weather riding, will start at a walk, and pulls like a Loco., 4½ h.p. £26 0

ROC, 4 h.p., vertical engine, h.-b. control, magneto, clutch, rubber-studded tyres to both wheels, very low and good £23 0

1908 MOTOSACOCHE, in splendid order and condition, low, light, and handy, would suit a doctor £22 10

QUADRANT, 3½ h.p., magneto, spring forks, handle-bar control, 26in. wheels, good order and condition, very powerful £21 10

ANTOINE, 4 h.p., magneto, 26in. wheels, low M.O.V., a good machine at a low price £18 0

QUADRANT, 3½ h.p., accumulator, spring forks, in good condition, and runs very well, low, and economical £17 10

REX TWIN, 5½ h.p., spring forks, good compression, good general condition, a very powerful machine, suitable for sidecar work, at a decidedly low price £16 10

ARIEL, 3½ h.p., vertical engine, M.O.V., B. and B., Watawata belt, 26in. wheels, been used with trailer and sidecar, very cheap at £15 10

CLYDE, 3 h.p., magneto (h.-t. current), not a new machine, but a good machine at little money £14 15

1906 3½ h.p. REX, low built, spring forks, M.O.V., long bars, cheap and good, especially at £14 10

REX 3½ h.p., H.B., control, very powerful, 22" frame, a good handy mount £11 0

HASKARD, 2½ h.p., easy starter, trembler coil, very flexible engine, and capable of a really good turn of speed, in very good condition £11 0

ALLDAYS, 2½ h.p., vertical, 26in. wheels, good tyres, spring forks, with carrier, and in good working order £11 0

EXCELSIOR, in splendid condition, and beautiful order, good tyre, good everything £9 15

REX, 3¼ h.p., the John-o'-Groat's model, 22in. frame, an orphan who requires a good home for £9 10

KERRY, 2½ h.p., 26in. wheels, spray, Palmer tyre, very low and handy, decidedly reasonable at .. £9 10

RALEIGH, 2 h.p., vertical, V belt, spray carburetter, two brakes, as good as a modern lightweight £8 15

QUADRANT, 1¾ h.p., very low, 26in. wheels, coil and accumulator, an easy winner at £7 5

TRIUMPH-MINERVA, one of the old brigade but a real good 'un £5 19

WE CATER FOR EXCHANGES.

TRICARS FOR SALE.

TRICAR, 6h.p. Riley, three speeds and reverse, car tyres, fast and reliable, spares, good condition; photo; £48.—Aricoma, Brighton Rd., Purley.

REXETTE, 10h.p., 2-cyl., 1907 model, open, live frame, 3-seater, exceptionally fast; £35; motor bike part payment.—48, Walton Rd., East Molesey.

5½h.p. Rex Triette, Osborne four-speed, Whittle belt, Amac carburetter, h.b. control; accept £21, or exchange lightweight.—56, Kingston Rd., Teddington.

FOR Sale or exchange, 4h.p. White and Poppe, three-speed, Chater-Lea frame, tricar, good climber; any trial given.—Cooke, 159, Mottram New Rd., Hyde.

LIGHT Tricar, Bosch magneto, Roc clutch, two speeds, 5½h.p. twin Rex, new last July, perfect running order; 39 guineas, complete.—22, Victoria Terrace, Leamington.

PHŒNIX Trimo, two-speed gear, Minerva engine, coach-built, starting handle; can be converted into motor cycle; £13, or what offers?—"Ashlyns," Salisbury Rd., Watford.

TWO-SPEED 3½h.p. Minerva engine Tricar, coach front, chain driven, been little used; sacrifice £15, or exchange magneto cycle.—Fielding, tobacconist, 41, Market St., Hebden Bridge.

5-6h.p. Wolf Tricar, two speeds, free, foot clutch, w.-cooled, foot brakes, automatic carburetter, Clincher tyres; trial; expert examination; £30, offers.—78, Castlereagh St., Barnsley.

TRICAR, fast and powerful, 6½h.p. Aster engine, Longuemare carburetter, two speeds, climb anything, non-skid tyres all wheels, perfect; £20, or near offer.—Thorne, Ashtead, Surrey.

4½-5h.p. Water-cooled Humber Tricar, free engine, starts like a car, in good condition; £14; trial run given here in hilly district.—P. Birch, Barfield Terrace, Sutton-at-Hove, Kent.

5h.p. Rex Triette, twin, 1909, new Whitsuntide, £10 worth extras, all spares, splendid condition; best offer over £45 secures. 2½h.p. Humber, £5.—"Ravenroyd," Queen's Rd., Doncaster.

5h.p. Twin Rex Triette, air-cooled engine, Bosch magneto, two speeds, Roc clutch, 1½ belt, specially built July, 1908, engine new in 1909, cane seat, footboards, etc.; £38, or nearest offer.—G., 33, Meriden St., Coventry.

BARGAIN.—6h.p. Clement-Garrard Tricar, shaft driven, three-speed gearbox, large clutch, drives like a car, heavy Dunlop tyres, studded non-skids, luxuriant forecar, in perfect running order and new condition; will give any trial; must sell; £30; all accessories.—Freeder, 210, Old Montague St., Whitechapel, London.

5½h.p. Excelsior, powerful, water-cooled tricar, best fittings, and good condition throughout, 26 by 2½ tyres, foot brakes, Mabon free engine clutch, handle starting, drives like a car, coach-built upholstered body, 1in. belt, trembler coil; bargain, £21; accept cash and 3½h.p. cycle.—17, Ford Sq., E.

6h.p. Twin Air-cooled Saroles Tricar, Simms magneto, Mabon clutch, electric side and rear lamps, acetylene headlight, coach-built forecarriage on C springs, Dunlop tyres, footboards, h.b. control, Binns carburetter, exhaust whistle, all in perfect order, engine new two months ago; sole reason for selling, owner buying car; price £40; photo on application.—Apply, O., 27, Campion Rd., Putney, S.W.

SIDECARS AND FORECARS.

RIGID Sidecar, 26in. wheel, perfect; £2 15s.—Smith, 16, Triangle, Bishop's Rd., Fulham.

MONTGOMERY, new, also fittings to convert to rigid; cash offers.—Frisby's, Wells, Som.

BEST Cane Forecar; cost £15, excellent condition, £4.—4, Barnsley Rd., Birmingham.

F.S.L. Sidecars, Hunslet New Rd., Leeds. Best value in the trade; from £4 10s.; on approval.

SIDECAR for Sale, £2 10s.; tyre quite new.—Ross, Isle of Wight, Warwick St., Deptford, Kent.

MILLS and Fulford Sidecar, reversible, recently re-enamelled; £3.—Rawcliffe, Grocer, Whalley, Lancashire.

ROOMY Sidecar, Fulford axle, splendid condition; upholstered; £3 15s.—Fryer, Long Sutton, Lincolnshire.

SIDECARS, £4 17s.; baskets, springs, fittings; trade supplied.—Middleton and Co., Watson St., Newington Green, London, N.

RIGID Sidecar, upholstered green, 26in., toolbox, basket under seat, complete less tyre; 52s. 6d. secures.—23, Arden Rd., Handsworth.

FORECAR Attachment, fitted three-speed gear, clutch brakes, fit any machine, 2½ tyres; £6.—Stanwell 45, Garthorne Rd., Forest Hill.

SIDECAR, brand new, upholstered green, 26 by 2in Michelin tyre, fit any machine; bargain, £3 18s. 6d., worth double.—169, Newfoundland Rd., Bristol.

11-GUINEA Sidecar, through unforeseen circumstances cannot accept delivery; must realise; 6 guineas.—Box 4,104, *The Motor Cycle* Offices, Coventry.

PILOT Sidecars, by test the best; our latest model, £4 17s. 6d., complete; is a really high-class production, and must not be confounded with the sidecars offered elsewhere; our determination to make the best is deliberate; assemblers compete in price only; approval; deposit; gradual payments.—Manufacturers, Pilot Cycle Co., Soho Rd., Birmingham.

SIDECARS AND FORECARS.

FORECAR Attachment, long stays, band brakes, and quarter-plate camera, with all accessories, for sidecar, fit Rex, 1906.—Dee, 34, Aberdeen Rd., Wealdstone, Harrow.

MILLFORD £14 14s. Sidecar, castor wheel, art cane, upholstered green pegamoid leather, enamelled aluminium, 2in. Clincher, unpunctured; £5 5s., or near offer.—Starkey, Meat St., Willenhall.

1909 Millford Rigid Wicker Sidecar (left), with extra detachable child's seat, not run 100 miles; bought car; bargain, £5 15s.; new Riches tuba, 26 by 2½, 11s. 6d.; Brooks B105, 15s.—Huskin, Weighbridge, Guernsey.

FOLDING Sidecars, will go through any doorway where motor cycle will go without detaching, is absolutely rigid, more comfortable and convenient than any existing sidecar, grade A, £7 7s.; grade B, £5 7s.; your old sidecar converted into folding for £1 17s. 6d.; ordinary detachable sidecar, £4 5s.—Sole Manufacturers the New Mona Cycle and Motor Co., Mona Wks., Barrett's Grove, Stoke Newington, London, N. Garage at rear 166 and 168, High St., Stoke Newington, N. (see under repairers.)

SIDECAR COMBINATIONS.

3½h.p. Minerva, four speeds, Whittle, Amac, £14; sidecar, coach-built, £3.—Astley, 88, Landcroft Rd., Dulwich.

5h.p. Sarolea and Sidecar, low, Chater frame, h.b.c., spring forks; a bargain, £12 10s.—58, Hamfrith Rd., Stratford.

N.S.U., 6h.p., coach-built, new October, 1909, not ridden 300 miles, unscratched; any examination.—Frisby's, Wells, Som.

5h.p. Genuine Peugeot Motor Cycle and coach-built sidecar for sale; £25.—E. Porter, 54, St. John's Rd., Clapham Junction.

3½h.p. Minerva, with almost new Mills-Fulford sidecar; sacrifice £17 10s.; exchange lightweight. — 19, Counce St., Blackpool.

4½h.p Stevens, Osborne four-speed, complete with coach-built sidecar; £15.—Smith,. 16, Triangle Bishop's Rd., Fulham.

3½h.p. Motor Cycle, with Mills and Fulford sidecar; any trial; £18, worth £30; sidecar only.—Varney, 40, Angel Lane, Stratford.

ROC, twe-speed, and Montgomery No. 1 sidecar, detachable frame, nearly new; £38; sidecar, £6 10s.—Manager, "News" Office, Hexham.

1908 Twin Rex and Sidecar, new condition; £29, or £25, or exchange with cash Triumph, or similar.—Walter H. Jones, Newport, Salop.

7-9h.p. Twin and Sidecar, Mabon clutch, Amac, h.b.c., 26 by 2½ tyres, enamelled grey, long, low; bargain, £29.—Particulars, 4, Bath Buildings, Cheltenham Rd., Bristol.

3½h.p. Waddington, G.B. sidecar, splendid condition, new Dermatine belt; will separate, cycle, £8 10s., sidecar £5; £13 the lot.—1, Vale Cottages, Kingston Vale, Putney.

5h.p. Two-speed V.S., gear and engine perfect, new cylinders just fitted, and re-enamelled, Kempsball and R.O.M. tyres, £35; also 12 guinea Chater-Lea sidecar, £5.—Cocks, Sturton St., Cambridge.

4-5h.p. Laurin-Klement, spring forks, B.B. carburetter, h.b. control, in perfect running order, and Chater-Lea sidecar; nearest offer to £25.—Apply, Mills, 145 Hughenden Rd., High Wycombe, Bucks.

MOTOR Cycle, 4½h.p., and sidecar, 26in. wheels, a.b. control, footbrake, new belt and new tyres, unpunctured all enamelled French grey; any trial; complete, £18.—Collison, Albion Hotel, Broadstairs.

SIDECARIST, Vindec Special, 1908, 5h.p., Roc two-speed, starts like car, Bosch, Truffaults, Longuemare, lever control, Whittle, rigid sidecar, wicker, splendid condition throughout; bargain, £30, no offers.—41, Ashford Rd., Cricklewood.

LATE 1906 P. and Moore, and sidecar, perfect condition, £19 10s., or separate; 4½h.p. twin Minerva, light, low, 1907 model, first-class condition, £17 10s.; wanted, 1909 Triumph, or two-speed magneto twin.—Fielding, tobacconist, 41, Market St., Hebden Bridge.

1909 Matchless and rigid sidecar, 8h.p., J.A.P. engine, M.O.I.V., Nala two-speed gear, 2½in. tyres, two spare Riches tubes, lamps, tools, and spare belt, excellent condition throughout; trial or examination allowed; £48. — Lieutenant Macnamara, R.N., Whale Island, Portsmouth.

MOTOR TRICYCLES.

WHAT Offer for Motor Trike, 3½h.p. M.M.C. engine; trial any Sunday.—Norman, 15, Seaton Rd., Whitton, Hounslow.

CARS FOR SALE.

10-12h.p. Tonneau, 4-seater; £50; motor cycle wanted. —28, Grove Lane, Stamford Hill.

8h.p. Ariel, 2-cyl., seat four, good condition; goes well; £35.—27, Kingsbury Rd., Dalston.

REGAL, smart, 2-seater, 6h.p. De Dion engine, like new; £38.—26, Waynflete St., Earlsfield.

PERFECT 4-cyl. Car, Panhard engine; must realise; £55.—Gaskin, Clifton St., Wandsworth.

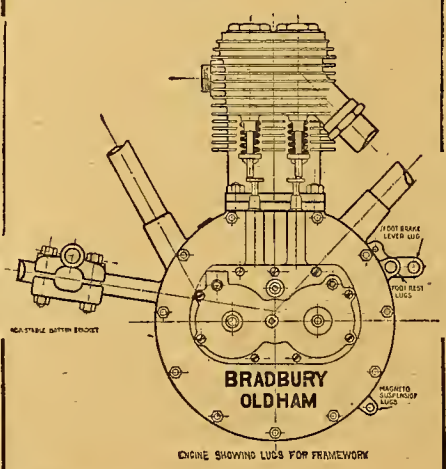
SUNBEAM Mabley, absolutely in the pink of condition; nearest offer to £20.—Long, Crowle, Linca.

BRADBURY

3½ h.p. MOTOR.

An expert opinion declared it to be ahead of anything yet turned out in the Motor World.

Owing to its special frame construction, no other Motor Cycle is as rigid, as well balanced, as steady on the road, or provides the same accessibility for repairs or re-adjustment to engine parts.



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CARS FOR SALE.

DARRACQ, small tonneau, tyres perfect, r ally as new; £28 bargain.—Glaise, High S

SMART Little 2-Seater 6h.p. Automoter, cha £20.—Smith, 16, Triangle, Bishop's Rd.,

4½h.p. De Dion Car, 2-seater, in good runnin £10.—W. Rainbow, 27, Margaret St., North

ECLIPSE.—14-16h.p. Darracq, the 1910 sp immediate delivery; £225; old car part pay

ECLIPSE.—40h.p. Napier, 4-cyl. tonneau, bo radiator; a real gift, £68.

ECLIPSE.—18h.p. Siddeley, side entrance, hood dual ignition; a gift, £115.

ECLIPSE.—16h.p. Chenard-Walcker, side Capa hood, two ignitions, noiseless; £11

ECLIPSE.—14h.p. Star, 4-cyl., M.O.V., side excellent order; £85.

ECLIPSE.—14h.p. Forman, 4-cyl., M.O.V., trance, new condition; bargain, £105.

ECLIPSE.—14h.p. Pritchett and Gold, 4-cy frame, hood, excellent order; £72 10s.

ECLIPSE.—12h.p. J.P., 2-cyl., long chassis, trance, hood, perfect order; £80.

ECLIPSE.—10-12h.p. Gnome landaulet, four splendid order; £87 10s.

ECLIPSE.—6h.p. Siddeley, 2-seater, steel fr liable and good; £42.

ECLIPSE.—6h.p. Swift-De Dion, 2-seater, ho fect order; £38.

ECLIPSE.—10-12h.p. Star box delivery van, v order; £60.

ECLIPSE.—6h.p. De Dion-Regal, 2-seater, three very smart; only £31.

ECLIPSE.—6h.p. Quadrant Carette, coach-bu speeds; £20.

ECLIPSE.—3½h.p. Raleighette tricar, two speeds cooled, splendid order; £20.

ECLIPSE.—5½h.p. Rex Triette, 2-cyl., very fi chine; £20.

ECLIPSE.—Repairs and replacements of every tion; trade work a speciality; complete ove let us quote you.—Eclipse Engineering and Mo 255, Earlsfield Rd., Wandsworth. 'Phone, 1135 Station, Earlsfield, L.S.W.R., 15 minutes from W

PALMER.—16-20h.p. Simms, side entrance screen, H.T. magneto, cardan drive, mag condition; £125.

PALMER.—8h.p. Jackson, racing type, genui Dion engine, pressed steel frame, absolute fect; £75.

PALMER.—16-24h.p. De Dietrich, tonneau, sea persons, splendid reliable car, beautiful con £55.

PALMER.—9h.p. nearly new 2-seater, best Free raked steering, wheel control, perfect; £90

PALMER.—16-20h.p. Mutel Landaulet, open body, side entrance, grand car; £100.

PALMER.—40-50h.p. De Dietrich, side entran latest model, fitted hood, screen; £325.

PALMER.—16-20h.p. De Dietrich, 5-seater, m just re-painted, and ready to go anywhere;

PALMER.—12-16h.p. Aries, tonneau, genuine engine, fast, reliable, and light car; £75.

PALMER.—15-20h.p. Panhard Chassis, with body, 4-cyl., good running order; £55.

PALMER.—12-14h.p. Humber, tonneau, Mosa fect tyres, very smart car; £65.

PALMER.—9h.p. Jackson, 2-seater, bucket bo eral condition like new; £85.

PALMER.—9h.p. taxicab, latest style, landaule seating four inside, very smart; £150.

PALMER.—8h.p. Buchet chassis, late type, long fast running engine; £75.

PALMER.—16-24h.p. De Dietrich Chassis, lat M.O.V., pressed steel frame; bargain, £85.

PALMER.—In stock at Tooting, one monoplan span, ready to receive engine; £75.

PALMER.—12-16h.p. Mutel, chassis, 4-cyl., drive, late type, like new throughout; £60.

PALMER.—16-20h.p., Anglian, side entrance lim all Aster fittings, and engine, silent and p £135.

PALMER.—8-10h.p. Humber, light side entran and head lamps, Stepney, like new car; £

PALMER.—14-16h.p. 1910 Darracq. I mak largest possible allowance for old car; £2

PALMER.—24h.p. F.I.A.T., Burlington body type car, best grade car, perfect; £175.

PALMER.—All above seen at L. N. Palmer' Trevelyan Rd., Tooting. Garage one minute Rd. tram terminus, Tooting. 'Phone, 208, Stre Photos, details. Easy terms. Exchanges.

FOR Sale, 5½h.p. De Dion 2-seater car, in s order; bargain, £25.—A. Cureton, Shifnal, shire.

6h.p. Smart Humber 2-Seater, three speeds, hood, screen, Stepney; £44.—20, Potter Lane, Leeds.

THE MOTOR CYCLE

Vol. 8. No. 362. Feb. 28th, 1910.

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FOUR PAGE SUPPLEMENT.
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Auxiliary Exhaust Release.

ANOTHER of those unfortunate rulings which, unless recalled, will undoubtedly go a long way to retard progress has just been issued, this time by no less an important body than the Brooklands Automobile Racing Club. We refer to the rule regarding the Easter events at Brooklands, which states, "Motor cycles fitted with ported cylinders or auxiliary exhaust ports (whether covered or not) are not eligible to compete." Naturally, the B.A.R.C. has issued the regulation with good intent, the idea being that it will encourage the use of standard machines, and will give the amateur a better chance of winning than formerly. With this we agree to a great extent, but the B.A.R.C. has unconsciously hit rather hard against at least two firms we know of, but probably when the true facts are made known the regulation will be amended. This issue of *The Motor Cycle* contains an announcement and description of the first motor bicycle to be *standardised* with auxiliary exhaust release holes in the cylinder. If all that is expected of it comes to pass, this new departure is likely to be the forerunner of many other devices of a similar nature. Yet experiment and progress in this direction are likely to be hindered by a rule which we are bound to think has been issued without the prior consideration the question deserves. Who knows that additional outlets for the exhaust gases may not be standard some day? The frequency of exhaust valve breakages last year, and the numerous complaints of knocking in the engine, strongly suggested some such desirable improvement. In framing the rule it is highly probable that the B.A.R.C. committee had in mind the exposed holes in the cylinder walls as adopted on some racing machines, the fearful din, and the rider's legs bespattered with oil blown through the additional holes in the cylinder. Such were the conditions obtaining in the case of track racing motor cycles of bygone days, but there is nothing of this kind connected with the engine described on another page of this issue—in fact, one could not tell from a casual inspection that there was anything special about the engine. Nor is there any extra noise caused by the additional outlets for the burnt gases. Obviously, therefore, there is nothing against this type from the point of view of appearance and noise, and now what everyone interested in motor cycles would like to know is whether the exhaust release holes have a beneficial effect on the running of the engine, and how this type of engine compares with the orthodox type, when raced side by side under equal conditions. Unfortunately, on account of the rule referred to, the makers of the engine in question are for the present moment debarred from entering for the Brooklands Easter events and demonstrating the advantage (if any) of auxiliary exhaust ports, although we are assured that it was their original intention to do so. We trust that the Brooklands Automobile Racing Club Committee will quickly see the ill-effect the regulation they have just issued is likely to have, and recall, or at least amend, it before the date of closing of entries for the Easter events.

1200 MILES ON A MOTOR BICYCLE WITH SIDECAR

BY

VINCENT BURROW, M.D.

(The first instalment appeared in our last issue.)

EIGHTH DAY.—Cullompton to Barnstaple, 54 miles.

Having put on the new Shamrock belt, we started at 10.30 *en route* for Dulverton, but had a stop on the road, owing to stretching of the new belt. The best road is not the direct one to Tiverton, which is all hill, but that through Tiverton Junction, which is almost flat. At Tiverton we obtained petrol and oil, and were soon winding our way along the beautiful Exe Valley. This is one of the finest rides in the country. A horse and trap coming from a side road narrowly missed us, and shaved off the fastener of the sidecar lamp. Leaving Bampton on our right, we ran on to Dulverton, and, wishing to see a little of Exmoor, we ran up past the town, but were directed wrong, and had to take a narrow lane with loose stones and deep cart ruts, and almost dark in places from the overhanging foliage, and, to make matters worse, a real Devonshire gradient. I found it impossible to drive up, and had recourse to pushing and occasional use of low gear whilst running alongside. It was a desperately hot piece of work, and we seemed to be never coming to the top. Showering innumerable maledictions on the man who had directed us, we at last reached the summit, and got on to the moor, where we enjoyed a much needed rest. Going down to the town again by another road, we came to such a sudden and dangerous drop that we dared neither to drive down nor walk down with the machine, but, discovering a private road leading down to the town, we took French leave, and hurriedly drove down that way, spending some little time exploring the beauty spots of Dulverton.

Leaving shortly *en route* for Barnstaple, we came to a very steep hill about five miles from Dulverton, so steep that the belt slipped constantly on the low gear, and it required a brisk bit of pedalling to get up. Getting tea at a friend's house at South Molton, and spending about an hour there, we left at 5.50, going down a steep descent at Swimbridge, and arrived at Barnstaple at 6.20 p.m.

All the Devonshire roads so far we had found thick with white and red dust, but the surfaces of the main roads excellent. We had to shorten the belt twice on this day, and noticed just a few spots of rain.

We had intended to motor to Lynton, but were strongly advised to take train, and it was fortunate we did so.

Covered with dust, we motored to the station to enquire as to trains, when, on walking back to our motor, a cabman facetiously remarked, "Cab, sir?"

Porlock Hill, Lynton and Minehead coaches descending.

NINTH DAY.—A Visit to Lynton and Lynmouth.

The morning proved bright and frosty. Leaving at 7.30 a.m., we took our first ride by train since starting from home. The railway is quite a toy affair; the gauge is only 24in., and the small wheels bring the coaches very near the ground. The train is a triumph of the engineering art. It winds in broad S curves round the sides of the mountains, and even then in places the gradients are stiff. Lynton station is high above the town, and there is a steep descent to the latter, also thence a steeper and winding path to Lynmouth. This is one of the beauty spots of this coast. The walks by the rocky river bed, shaded from the sun by the luxuriant foliage, must be taken to be appreciated. No description of mine could portray their beauty. All the hotels in the town seemed full of visitors and tourists. We spent nearly the whole day by the river, walking to Watersmeet, and also seeing the harbour and noting the cliff railway. We returned to Barnstaple in the evening.

TENTH DAY.—Barnstaple to Tavistock, etc., 75 miles.

Leaving at 10 a.m., we ran through to Bideford (close to the coast), and then on to Clovelly. At the

Miles on a Motor Bicycle with Sidecar.—

pf the hill we left the N.S.U. and walked down winding path, and finally down the steps leading ie village.

Lovelly has a beauty of its own, and is more ait than Lyn- ia. The High et is traversed eans of steps vl with cobble r, and is, I n, unique. A ater from asea and Ilfra- ne was just ping anchor e we arrived. eling some u here, we ially re- rd on our y o Tavistock ilkhampton, abn, and ueston, where r is a steep l through the vn which we oated on low speed. This part of the county ve hilly, and no end of lubricating oil is required. viock was reached at 6.30. We drove straight oh to Mary Tavy, a village four miles out, to sne friends, and stayed h hem till dark. Re- ni , we took the wrong d, and encountered so ep hill that my passenger l walk. The motor, , s sulky, and very hard st , and misfired badly. wer, 10 o'clock saw us k t Tavistock, where we ye the night.

Lynton and Lynmouth from Summerhouse Hill.

E ENTH DAY.—Tav- oc to Escott, 52 miles.

Th next day, after oiling , discovered the cause th motor's erratic be- vio was pitting and ick ing of the platinum int of the contact breaker. so filed and adjusted m, nd the motor was in go trim as ever. There to steep hills on to rtm or. A herd of cows ilt our climb on one of m, nd my passenger had di ount and walk part the ascent. The second w were climbing well, en he gear went wrong, I made a hurried dis- unt Fortunately, nothing worse had happened n tat ; owing to the strain of starting on such steep dic ts, one arm of the stirrup working over the set-screws had bent and jumped the screw. I took the stirrup off and bent it back into place, and the gear was again perfect.

We started up on the 1 in 10 gradient, and passed to the top. The prison and Princetown we saw in the distance, and, being ready for breakfast, we got out our basket and made our meal amongst the yellow gorse and purple heather in the kindly rays of the sun. At Dartmeet we stuck on a very steep hill, the surface being very loose. This meant another walk for my passenger and two more attempts on my part before succeeding in driving up, and then with hard pedalling. Stopping on a less severe portion, I essayed to start off with my passenger, but it was fruitless, as the engine stopped each time I put the low speed in. I went up alone, therefore, and waited at the top nearly half an hour for my passenger, who found it hard work even to walk up. All this took time, and it was now past two o'clock. At New Bridge Hill, the gradient of which must be something terrific, the brakes, although locking the back wheel, failed to hold the machine, which shot forward at an alarming speed, and wearing a beautiful flat on the back tyre. The hill being winding and evidently very dangerous, I quickly decided to steer for the hedge and bank, and managed to strike same with the front corner of the sidecar. The cane-work was bashed in, but it drew us up promptly, and with no injury to ourselves or the front forks. We then wheeled the machine down the hill with low speed in gear, compression on, and hand brake applied, and even then had difficulty in holding it back. This hill is, I consider, the most dangerous we came across in our tour, and yet there was no sign of a warning board or triangle—in fact, I saw none on any part of Dartmoor. I heard in Ashburton shortly after that a day or two

Entrance to the close of Sarum, North Gate, Salisbury.

1200 Miles on a Motor Bicycle with Sidecar.—

before two cars came to grief on the identical corner where we took the hedge. One burst into flames, and the other, in endeavouring to draw up to render assistance, crashed into the first. After this episode we had an uneventful run into Ashburton, arriving there at 2.55.

Filling up with petrol, and after quaffing a large glass of cider, we left about 3.30, and came upon some excellent roads, and these were almost flat besides. Two miles from Chudleigh the back iron supporting the footboards struck some large obstacle on the road and wrenched off the boards. These I got put on again at Chudleigh. Meanwhile we visited the rocks, glen, and caves, all worth seeing, and had tea under the shade of the apple trees at the glen.

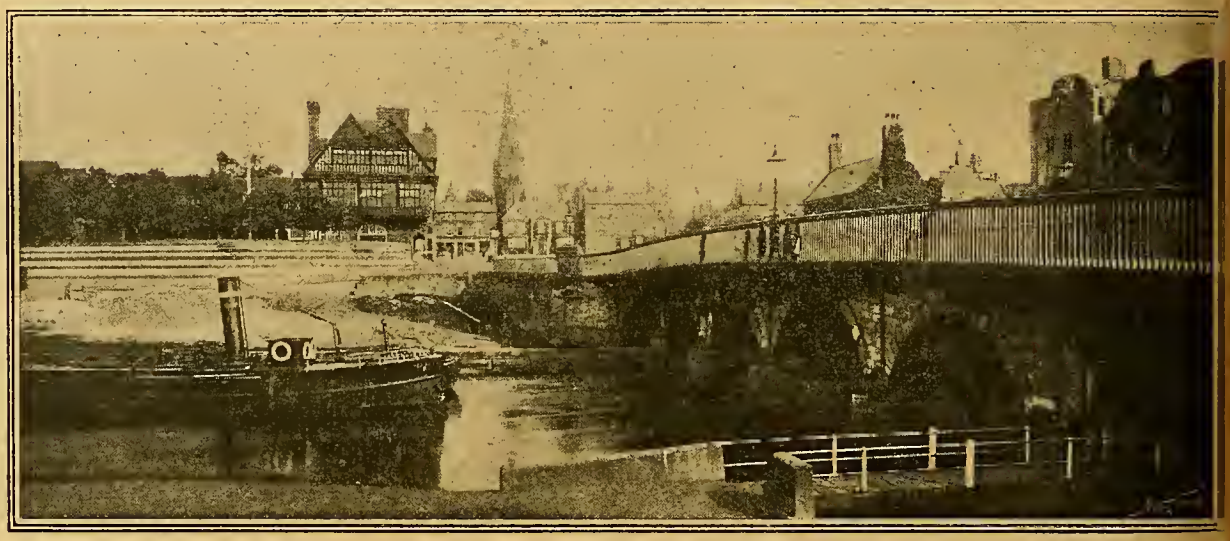
Passing through Exeter at 6.30, we had two bad skids on wet tramlines. In each instance the skid ended in my cycle falling over towards, and locking against the side of, the sidecar, jamming my leg between the two and pinning me helpless until my passenger got out and pulled the motor upright. Past Heavitree we encountered a long ascent, followed by a similar descent. Near the village of Escott we happened to meet the county surveyor, and, hearing there were unrolled stones further on, we decided to stay where we were. We were comfortably housed at the Fairmile Inn (one of the P.R.H.A. houses), were well attended to, and found the tariff exceedingly moderate.

TWELFTH DAY.—Escott to Bournemouth, *via* Salisbury, 109 miles.

It was quite a change to wake up and find ourselves in a quiet village after the bustle of the towns we had previously stayed at. The weather was still magnificent, and, leaving in good spirits, we ran into Honiton. Then we had several miles of uphill to climb, which, although not steep, made the going rather slow. Then through Chard to Yeovil, where we took some petrol, and where I at last happened on a garage where I had the choice of Price's or Vacuum oils. Then on through Sherborne and Shaftesbury to Wilton, the outskirts of Salisbury, the N.S.U. all the time r ning with the regularity of a locomotive. Getting at Wilton, we ran into Salisbury at four o'clo Another gallon of petrol, and we started off Bournemouth *viâ* Ringwood and Christchurch. T road is almost flat, and in places very pretty. Arr ing at Boscombe, we found the tramlines so w watered that, bearing in mind the previous skiddi propensities, we crawled along on low gear until came across a suitable hotel, where we put up, a after a wash and change took train to Bournemou itself.

THIRTEENTH DAY.—Bournemouth to Brac ley, 114 miles.

Leaving about 7.30, we were soon running throu Christchurch, and thence had an uneventful run ba to Salisbury, and, passing through, we were soon up the Andover Road, keeping a wary look-out for poli traps. The road was inches deep in loose, sha



Trent Bridge, Newark, familiar to London-Edinburgh riders. The castle, the ruins of which may be seen on the right, was demolished by Oliver Cromwell.

flints, and momentarily I expected tyre troubles. Su enough, about four miles from Andover my front cov and tube were cut through by a sharp flint. As had noticed at Stroud a week before a very decid bulging in one part of the front cover, which h gradually increased in size, and now barely cleared t forks, I thought it would be a good opportunity to p on the new cover which I carried tied on to the ba of the sidecar. Alas! I little knew what I h essayed to perform. The fierce rays of the su from which there was no shelter, beat upon me as, wi coats removed, I proceeded to take out the whe having previously searched in vain for a piece of wo or stone to put under the crank case, in order to rai the front wheel from the ground, and having at l to jack it up with my spare petrol tank. The whe came out without much trouble, and I repaired t cut tube, and then tried to get the new cover on t rim. Perspiration poured down my face as at last got one side of the cover on, then the beaded ed had to be cut away to make room for the secur

200 Miles on a Motor Bicycle with Sidecar.—

bolts, and, hardest of all, those security bolts had to be coaxed into their places. Eventually this was accomplished, the tube inflated, and the wheel ready to be put back into the forks. The girders had to come off to get the spindle in, but at last everything was accomplished after nearly two hours' work. Starting off, we passed safely through a police trap, and got to Andover close on two o'clock. Half starving, for our luncheon basket was empty, we ordered a big breakfast, to the astonishment of the restaurant people, who thought we meant lunch, and, having partaken of same and replenished our petrol tank, we turned off the London Road and made direct for Newbury. When just about clear of the town we disturbed the equanimity of half a dozen hens which were strutting about the road. Three of them took to the hedge, but the other three were foolish, and attempted to cross our path. What became of one I don't know; the second dodged under the sidecar; number three, although I did my best to avoid it, pulled my front wheel. Immediately there was a cloud of feathers blown up into my face, and when these had cleared a bit I perceived the hen firmly jammed between the front forks and rays and the rapidly revolving wheel. I turned and said to my wife, "It's a case of sudden death, at any rate," and so we thought. When well clear of the houses I slowed down and stopped, and with some difficulty dislodged the hen, and threw her down on the grass, when, to our amazement, she bounced up and staggered across a ditch into the hedge, where it succumbed. After this incident the ride proved uneventful. The road we had taken proved very good except for one dangerous descent, which we cautiously negotiated with both brakes on. Abingdon was reached at five, and, after having tea, we were soon threading our way through Oxford. Our route now lay direct to Northampton, and proved very good indeed. It is flat, almost dead straight, and the country is well wooded and picturesque. The puncture fiend again visited us four miles out of Oxford; again it was a sharp flint. After a stop to light up we drove, assisted by the light of the harvest moon, to Brackley (Northants), reaching there about eight o'clock. Here we elected to spend the night.

Micklegate Bar, York.

FOURTEENTH DAY.—Brackley to Selby, 156 miles.

Leaving betimes, we encountered a thick, heavy mist, which did not disperse until we had got nearly into Kettering. Northampton was enveloped in fog, and this was the cause of our taking the wrong turning out of the town and finding ourselves hopelessly at sea in narrow winding lanes. We had to make a semicircular detour through rather pretty lanes, and finally struck the main Kettering road after considerable loss of time and trouble. Getting breakfast at Kettering, the mist now rapidly clearing, allowing the sun to exert its power, we ran along the switchback road to Stamford, where we stayed an hour. Having been warned by a passing motorist, we crawled through three police traps on both sides of Grantham, being now on the Great North Road. At Muskham, near Newark, we suffered another puncture. We passed through Doncaster at dusk, and, having lit our lamps, drove in the moonlight the twenty-one miles to Selby, where we decided to stay that night.

FIFTEENTH DAY. — Selby to Newbiggin, 128 miles.

The last morning of our tour was dull and threatening. Leaving at 7.30, our first stop was at the toll bar just out of Selby, the charge being 9d. for cars and 3d. for motor cycles. We had belt trouble, also a broken belt fastener, and halfway to York our petrol tank ran dry. Fortunately, I had nearly two quarts in the spare tin, and poured this into the tank. At nine we entered York, and bought two gallons of petrol. On this day the two-speed gear caused slow travelling by slipping on the top speed, owing, I suppose, to the clutch spring being rather too weak. We had no other trouble, and, passing through Thirsk, had breakfast at Northallerton. We left the latter town at mid-day, and soon got to Darlington, where I obtained and fitted on a gaiter for my back tyre, the rubber tread having worn right away in places, and the canvas being frayed and thinned. Leaving at two, we ran on without a stop to Gateshead, encountering for the first time during our tour heavy rain and a cold headwind at Ferry Hill. Exactly at the end of the high level bridge at Gateshead our tank again ran dry, and needed replenishing from the spare tin. Thence we ran on to Morpeth after yet another skid on the tram-

1200 Miles on a Motor Bicycle with Sidecar.—

lines in Newcastle, filled up with petrol, and arrived home at a quarter to six.

Thus ended a most pleasant tour, during which we covered nearly 1,200 miles, in splendid weather, and, had it not been for the tyres and to a lesser extent the belts, we had practically no mechanical trouble. All the nuts and bolts on the motor were firm and secure at the end of the tour, and the engine behaved admirably. Tyres, as usual, were the chief trouble. The back tyre was a new specially reinforced pattern, yet was practically worn out in the 1,200 miles. The front tyre, which previous to the tour had only done 400 miles, had to be discarded. When will tyre makers give us a tyre with a decent amount of rubber on it? The two-speed gear was severely tested, and without it I am positive we could not have completed the tour, especially in Devonshire and the steep hills on Dartmoor. Except for the slipping of the clutch previously mentioned and the oil throwing, it worked as near perfection as one could wish.

The magneto, too, functioned admirably.

The sidecar proved safe and reliable except on greasy roads and tramlines, on which it is not a practicable vehicle unless the motor cycle be shod with non-skidding tyres, for it seemed to accentuate a skid.

The whole tour was completed on twenty-three gallons of petrol and five quarts of lubricating oil costing roughly £1 8s. and 7s. respectively, or £1 15s. in all.

This works out at an average of fifty miles to the gallon, which I think is not excessive, considering the country we went through, the amount of luggage, and the fact that the engine was a 6 h.p. twin.

Finally, a word of advice to any who desire to tour in Devonshire with a passenger attachment: Have plenty of engine power, strong brakes, and at least two speeds.

OCCASIONAL COMMENTS.

By "IXION."

Steel-studded Treads.

The last Quarterly Trials, according to certain authorities, "sounded the death knell" of the steel armoured tread for motor cycling purposes. Rubbish! It demonstrated the fact that steel-studded treads are worse than useless over frozen roads, but every sane rider of any experience knew this years ago. The steel-studded tread stands exactly where it stood before. It remains the fastest and safest tyre over really dangerous summer grease, upon which it affords an appreciably firmer grip than rubber projections. It retains efficiency as an anti-skid slightly longer than rubber projections, in my experience, because it is tougher in wear. It slows the machine more than rubber projections; it is far more liable to skid on smooth, hard surfaces, such as asphalt or stone paving; it is almost essential for passenger combinations over certain surfaces—I find rubber studs too pliable to hold a fast tricar or sidecar outfit to the path of rectitude over Derbyshire grease, for instance. But it is certainly the last tread in the world to trust to in the January Quarterlies when the roads are like a sheet of ice; and for winter riding generally it is less trustworthy than a rubber tread.

Insurance.

My experience is that the great majority of motor cyclists are totally uninsured with regard to their hobby. I can sympathise with a man of limited capital, who does not wish to burden himself with an annual premium of several pounds, and prefers to trust his £50 machine to his own skill and address, so far as collisions and fire are concerned, the same applying to his own personal safety. But riders should remember that the third party risks are the gravest liability attached to the sport. The most cautious motor cyclist may have the ill-luck to kill or cripple a child or an adult through no fault of his own. When he comes into court, as he is sure to do, he will encounter a tolerably strong prejudice against motor cycling in general; if the victim of the accident belongs to the poorer classes, he will be credited with a fictitious opulence on account of his ownership of a costly machine, and he is very likely to be condemned in damages running into hundreds of pounds, even if not an atom of responsibility for the accident properly attaches to him. Quite apart from rights and responsibilities and prejudices, any motor cyclist would like to be able to compensate, for instance, a poor man whose child had committed suicide under his wheels. Every motor cyclist should carry a third party policy of £500, for which the premium is quite small.

Advice to Club Secretaries.

A good many club secretaries bewail the apathy of their members, and not without cause. A membership of seventy or so produces a most meagre attendance at winter evening fixtures, and during the riding season perhaps only a dozen, on an average, honour social runs by their presence. The first thing to realise is that circulars effect little. Good average attendances are only worked up to start with by personal solicitation. A man who will put a dozen circulars in the waste paper basket will turn out if you call on him and give him a personal invitation. When you have once got him to a fixture, you must ensure him a pleasant evening, or he will not come again. Therefore, be as scrupulous about the character of your entertainment as if you were managing a music hall for a living. Move about amongst the members, and see that the shy souls are brought out and made to feel at home. After a successful winter season, just the same trouble will recur with regard to the summer programme. Most weak clubs err by catering exclusively for one type of rider—their runs are too long and too speedy, their competitions too exacting. At the outset the runs should be short and leisurely, and the novice member or the owner of an old crock should not be left toiling forlornly in the rear of a dust-raising crowd of scrappers. Gradually the distance may be increased, but the pace should always be moderate, the ardent spirits being firmly curbed. When competitions start, the early fixtures should be of an easy character, in which experts and costly machines have no special advantage. Speed judging, paperchases, slow hill-climbs, and the like, are to be recommended, until every member realises that he will never be left hopelessly out in the cold.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Draining the Crank Case of Dirty Oil.

Attempting to remove the screw at the bottom of the crank case of my machine in order to drain out the dirty oil, I had the misfortune to reak off the head of the screw, aving the body still firmly em- edded. There is now no means of raining out the oil. Does this atter? If so, what would you dvise me to do?—M. W. L.

It would be quite easy for a good mhanic to remove the screw in the crk chamber by drilling it. Cer- tay it is desirable to have a drain pl;, as one ought to empty out the ol oil at least every five hundred ms, and swill the crank case with pa ffin. A noticeable improvement in be running is usually the result.

A Frequent Query.

I have a 3½ h.p. 1909 machine, fitted with an Amac 1910 carburetter and a variable pulley. The gear at present is 4¾ to 1. Would it be pos- ble to use the cycle for sidecar work I lowered the gear? I am a light ler, and should not take a heavy rson in the sidecar. There are ne fairly stiff hills in the neigh- urhood. Does a sidecar strain the otor cycle much?—R. S.

To get any real satisfaction out of a ma ine used in conjunction with a sic ar you need a two-speed gear. On the other hand, in a fairly level co try, if you gear 5½ to 1, you should get fair amount of satisfaction with a decar, though you will not, of co e, climb such hills as Westerham, wh h has a maximum gradient of 1 in .

Respecting a Passenger Attachment.

My mount is a 3½ h.p. 1909 Rex (new in December), with free-engine clutch in back wheel. I wish to go in for a sidecar, or, if more suitable, coupler for a push bicycle. Com- ed weight would be about 18 st. (Which mode of carrying pas- ger do you advise with my chine, which is geared 5 to 1, and ich would be the least strain and iest to drive, and fastest? (*b*) If decar, which type? Have heard tible throws less strain on frame. l this so? (*c*) If you consider two- ed gear essential, could I have e fitted without cost of another tch also?—H. V. S.

(*a*) The best and most popular mode of rrying a passenger is with a side- car. It does not impose any undue strain upon the machine. It is not easy to drive until you are used to it, but, from the passenger's point of view, it is infinitely preferable. (*b*) It is true that a flexible sidecar imposes less strain on the bicycle, but for all-weather work the rigid sidecar is sometimes pre- ferred. (*c*) Yes, a two-speed gear is essential. The best thing you can do is to get the one fitted which is made by the makers of your machine. You may reckon a really reliable two-speed gear will cost you about twelve guineas fitted.

The risk of soldering petrol tanks.

I have a surface carburetter which I wish to remove and solder up in several places, and should be glad to know the best way to do this with- out an explosion. Would filling it with water answer?—G. W.

If this is to be your first experience of soldering a petrol tank, we should advise you not to touch it, but take the tank to a competent repairer. Last year there were several accidents owing to the petrol fumes not having been removed completely. Merely swilling out the tank with water is not suffi- cient; it should be repeated several times, and the tank left out in the open air for about a day.

Low Registration numbers. Lubrication.

(1.) Is there any difficulty in getting my cycle registration number cancelled, and where can I get a fresh low number, a southern English county for choice? My present L.C.C. number plate of six letters and numbers sticks out in front like a signpost when sufficiently advanced to be well illuminated by the lamp, and I want something neater. (2.) How often and how much should I oil (N.S.U. 2½ h.p. twin, new machine), and should I invariably oil when starting for a ride or start- ing on the stand?—F. W. P.

(1.) We are afraid that there are no low numbers obtainable in southern English counties. It would be better to register the machine in Ireland, where you can get probably two figures, if you try counties such as Sligo or Longford, in which case write to the Clerk of the County Council of either of these districts. (2.) After you have ridden the machine for about five miles, inject a pumpful of oil, and then oil regularly and as usual throughout the ride.

Various Interesting Queries.

(1.) Is a plain coil faster than a trembler coil? (2.) Would an ordinary plain coil be capable of sparking at two gaps in series if the points of each plug are made closer than is usual when one plug alone is used? (3.) What advantage is there in having carburetter close to engine—that is, in having a short distance for induction between jet and inlet valve? On my machine (2¾ h.p. with old F.N. carburetter) the mix- ture has to travel about 9½in. be- tween jet and inlet valve. Should I gain much by getting a new pattern carburetter and fitting it so that there is only a short length of in- duction tube necessary? (4.) What amount of opening should I have in my a.o.i.v.? Is ¼in. too much?—W.I.P.

(1.) A plain coil is certainly faster than a trembler coil. (2.) Yes, the coil would do what is required if special double pole plugs are used. (3.) The object is to warm the carbu- retter effectively, so that vaporisation of the petrol is easy in cold weather without the necessity for a special warming pipe. Some contend that a fairly long induction pipe is bene- ficial, as it allows the petrol vapour and air to mingle more thoroughly. (4.) ¼in. is too much; ⅛in. would be more likely to give the best results.

Engine Knocking at Slow Speeds.

My 80 mm. Fafnir engine (accumulator ignition, non- trembler coil, B. and B. car- buretter) has taken to knock- ing at low speeds—a dull pounding knock at each explosion, quite distinct from the sharp knock caused by the ignition being too far advanced. The engine is very slow gathering way, but when it picks up speed and I can give air it stops knocking. Does not knock at speed (ten miles per hour and over), nor up steep hills until slowed down. I have had cylinder off, and there is practically no up and down play in connecting rod bearings. Engine overheats, but knocking occurs when starting from cold, and at all spark positions until machine has gathered speed.—A.F.B.

It is somewhat difficult to say what is the cause of the trouble. First of all, we should advise you to examine the carburetter and see that everything is in order. Very often too weak a mix- ture (*i.e.*, too much air admitted *via*

th· main air inlet) will cause knocking. Secondly, the knock may be a mechanical one, due either to a worn bearing or possibly to one of the flywheels being loose. If the timing of the spark is too far advanced this would cause knocking, and especially if the gear ratio is high.

Uneven Running in Two Cylinders.

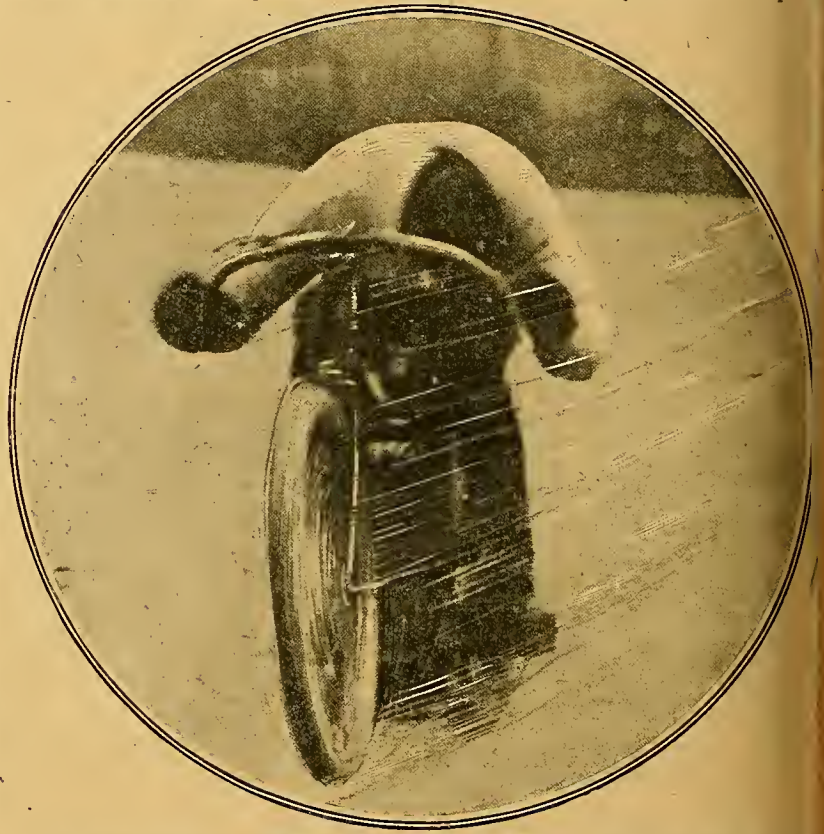
When riding my 5 h.p. twin Peugeot machine, if I cut down the gas one cylinder always stops firing before the other. I cannot account for this, as both inlets have the same strength spring, and they are fed by the Amac carburetter. I know the front cylinder has not quite the same compression as the back (and this is my experience with all Peugeot engines), but still I do not suppose this will account for what takes place. I might also mention that one cylinder appears to take rather more air than the other, but here again, when running along with the best mixture you can get, I do not see how this would cause the trouble. I want you to clearly understand that the one cylinder does not cut out until the gas has been very considerably cut down, but still I want both cylinders to go on firing to an equal point.—R. J. F.

The symptom described is by no means an uncommon one. If the engine is magneto fired, the maximum spark in one cylinder with a certain type of magneto occurs at a different point from that of the other cylinder. Consequently, although the two sparks occur at the right time, in the case of one a more feeble spark is given off than in the other. When the mixture is weakened by closing the throttle, the cylinder in which the weaker spark occurs misses fire. Also the fact that a slight difference in compression is to be found would tend to make the cylinder miss. The slightest variation in the amount of opening of the valves would also account for the symptom described.

Overheating and some Cures.

(1.) I have a twin-cylinder Kerry tricar which overheats very quickly, sometimes in about four miles. I try to rush hills quickly, but the engine suddenly slows down and stops. (2.) What takes place in the cylinder when overheating occurs? Does the charge fire before the time? (3.) Is the fault in carburetter? It is a Longuemare. I have the extra air inlet quite closed, and cannot open it the slightest or engine will stop. Should this be so? (4.) Would a new carburetter improve it much? If so, what make?—E. H.

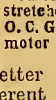
(1.) The trouble seems to be clearly overheating, probably due to the engine being screened from cooling draughts by the forecar seat. (2.) The cylinder gets so hot that proper lubrication is almost impossible. If there is any carbon deposit, particles of carbon become incandescent and fire the charge prematurely, causing knocking and a sudden stop. (3 and 4.) It is possible that the fault is with the carburetter, but this we cannot say for certain. The best thing to do would be to have the cylinder and piston cleaned of carbon deposit, then grind in the valves, fit new valve springs, and see how the engine will run. If it will take the full amount of air when running fast after it has been running for about 100 miles, you will know that the carburetter is practically right. Failing this, you will be well advised to have handle-bar control fitted to your carburetter. You can possibly improve your present carburetter by experimenting with different size jets and cones until you get it so adjusted that it will only take full air when travelling at its highest speed. Do not overload or force the engine along, and lubricate freely.



AN IMPRESSION OF SPEED.

In order to offer the least possible resistance to the wind, record breakers duck their heads for short stretches, only dancing up occasionally to make sure that the coast is clear. The photograph depicts O. C. Godfrey during what is generally supposed to be the fastest ride ever accomplished on a single-cylinder motor cycle. His mount is a 3½ h.p. Rex.

A Twin-cylinder Bicycle with Sidecar.



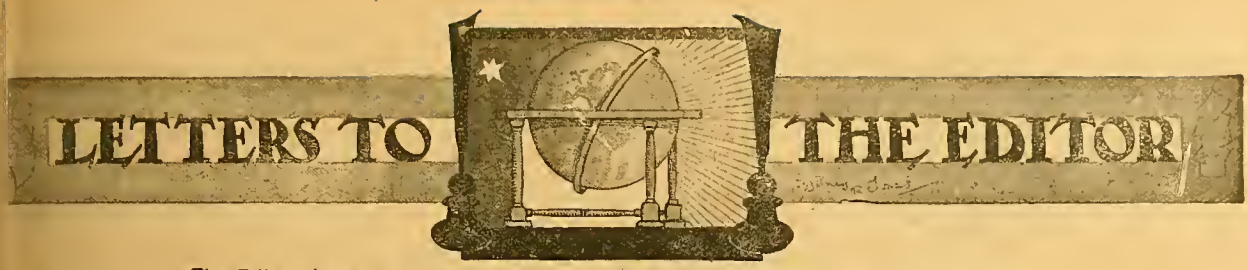
At present I have a 3½ two-speed free engine Bradbury, used nearly always with sidecar. I hope to run a two-speed 5 h.p. twin with sidecar. Are the costs much extra? About how many miles to the gallon should I get? Is there less vibration on a twin? Is it more difficult to start? Weight, 21 st. With my present 3½ h.p. several hills stop me unless I rush them. Now, with a 5 h.p. I ought to climb anything, but is it just as easy to drive and understand? Also (and this is important) can a twin be driven slowly in traffic?—F. R. L.

You should not find the cost very much more, say an extra 1s. per 100 miles at most. The consumption should average about sixty miles to the gallon. There is less vibration with a twin cylinder engine. Twin-cylinder machines are not difficult to start if the carburetter is properly adjusted. The machine should take you practically anywhere. You will find a good machine quite easy to drive and understand. Naturally, a twin requires slightly more attention, as most of the engine parts are duplicated as compared with a single cylinder. Of course, with the low gear it can be driven quite slowly in traffic.

READERS' REPLIES.

Chronic Misfiring.

Having experienced the same trouble as your correspondent "C.O.M." describes under "Chronic Misfiring" in the issue of February 14th, I recommend him to look to his earth connection, generally made between the switch block and the frame. The addition of a copper wire held under a nut on this block and secured to an adjacent nut on the frame, thus ensuring a sound earth connection, made all the difference in my case. He should trace the earth connection through all joints between the contact maker and switch.—E. B. WEDMORE.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Causes of Overheating.

4593.]—Would "P. G. J." [letter 4575] be good enough to explain *how* a leaky induction pipe could cause overheating of the engine? The theory sounds feasible enough if referring to the condition of the *rider*, as far as concerns his efforts at starting. C. McC.

The A.C.U. Quarterly Trials.

4594.]—I think both the public and the trade must agree, after the showing up in your columns of the last Quarterly Trials, that Quarterly Trials are an absolute farce, an insult to sport, to the competitors, and to the trade, and I do hope that we shall not have a repetition of them in a few months' time.

The letters of disagreement in your columns are quite sufficient to ring the death-knell to the last of these useless competitions. W. WILLIAMSON.

Cubical Capacity and Horse-power.

4595.]—Mr. W. H. Wells certainly opens an interesting discussion regarding the so-called 5½ h.p. single-cylinder machine. Might I suggest that this class of machine should be rated at its b.h.p.—at the number of revolutions the engine would be making were it propelling the cycle at the legal limit? Gear ratio, say, 4½ to 1. A. BIRT.

4596.]—The leaderette in your valuable paper of the 14th inst., although on the right lines, does not go far enough, as horse-power is the rate of doing work. Why should the unit of time be left out? The true basis of comparison is cubical capacity per minute, therefore engine revolutions should always be quoted, or, better still, the ratio between speed of driving wheel rim in contact with road and the piston speed of the engine.

I should personally feel much indebted to your paper should makers eventually take the hint through its medium.

J. POLLOCK BROWN.

4597.]—I am much interested in the h.p. question. My engine has a cubical capacity of 340 c.c., is rated by makers at 2¾ h.p., and by the R.A.C. formula at 3.6.

Another well-known engine has capacity of 499 c.c., makers' rating 3½ h.p., R.A.C. formula 4.

Is this very confusing. Surely some simple rule can be agreed to, giving the non-technical rider a better idea of the comparative power of different engines. I suggest that the rating be on capacity—100 c.c. to equal 1 h.p. This, I believe, would work out very near the actual power developed at maximum speed, and much better for comparative purposes than either the R.A.C. formula or the makers' arbitrary statements. W 1590.

Change Speed Gears in Rhodesia.

4598.]—I have been a constant reader of your paper and also a motor cyclist for some years. During that time I have ridden several motor cycles, and for the past two years a 3 h.p. Vindec two-speed. I am an advocate of the two-speed gear for motor cycles, and the Vindec gear I use has given me entire satisfaction.

As most people have heard, the roads out here are abominable, and I have found it impossible to do much riding without a second gear to fall back on. With the exception of a very occasional adjustment of the distance rods, I have never had anything wrong with the machine, and the rough usage it has had goes to prove that it is absolutely reliable. H. M. JONES.

Salisbury, Rhodesia.

The Transmission Question.

4599.]—Mr. Vivian Olsson says in his letter 4571, February 14th, that to make the Whittle belt as comfortable as a rubber one a slipping or spring drive is required. Why not convert to chain drive, which is neater, lighter, and not so expensive or clumsy, and does not gather "mud" to throw over the machine and rider. All belts are doomed, for it is an old and crude way of transmitting power on motors. In the future it will be either chain or shaft transmission, which will become the more popular. I certainly favour the shaft on account of its being weather proof.

PONY.

Increase of Speed on Partially Raising the Exhaust Valve.

4600.]—I think the following practically proves the reason of increased speed on slightly raising the exhaust valve lever. I have a 5 h.p. twin and find (when travelling at any speed up to about 30 m.p.h.) on slightly raising the exhaust valve lever the speed increases; when the engine is running on the stand, if I slightly help the exhaust valves on their upward movement with my fingers, I get again increased speed. I removed these exhaust valve springs and fitted weaker ones, then when raising the exhaust valve lever the speed did not alter. I think, therefore, the increased speed is due to the strength of the exhaust valve springs, when strong (as they should be for high speeds) and you help the valves on their upward movement you take some of the work and pressure from the cams. I consider the more pressure on the cams the more it acts as a brake on the engine. I have also noticed that some twin engines fitted with side by side m.o.v. will increase their speed remarkably on slightly raising all four valves, thus helping the cams to overcome the tension of the valve springs.

B. G. DURKIN.

Metal for Exhaust Valves.

4601.]—In the issue of the 14th inst. you published a letter [4576] signed "C.M.B." This reader asks for a little enlightenment as to metals suitable for petrol motor valves. I beg to remind him that when castiron is used it is only for the head, as it would be a waste of time and material to make a complete valve of this material.

I have had considerable experience with the various air hardening steels, so can inform your correspondent "C.M.B." that it would be quite an easy matter to forge and turn a valve from the latest kind of high speed steel, as it can be very successfully annealed, but after the first time of running the motor it would, of course, harden again. After it had become hard the valve stem would break, not being able to stand the jar. The only fault of this steel is that when hard it will not stand the least springing motion.

I can see no advantage by making the head only of high speed steel, as this would be no advancement on the castiron head.

The subject is a most interesting one, and after carefully thinking the matter over I can only suggest—as an alternative to nickel steel—the use of Wolfram steel. This steel is unshrinkable, very tough and hard. I would recommend the welding Wolfram quality.

If a valve made from this material would keep a good face on the seating it would be ideal, as the length of the valve would not alter under the various temperatures to which an air-cooled petrol engine is subjected. Perhaps someone who has an engine which is particularly destructive to valves will try this steel as an experiment.

PERCY H. DUDLEY.

Awards in the Quarterly Trials.

[4602.]—Like many other competitors in the above trials, I must say I am dissatisfied with the awards, chiefly in relation to one rider's stop to another's. I had a stop, and though the road wheel never stopped I reported it, and expected to have marks deducted for it; but when I see others get full marks, although they stopped as much as I did, naturally I am dissatisfied.

Re Dashwood hill-climb, I had steel-studded tyres. I started from a standing start, and got up the hill successfully; yet others who failed get just as many marks.

I could go into a lot of detail, but do not want to take up your valuable space. I think the suggestion to reconsider the awards a good one. F. W. APPLEBEE.

Riding Costs.

[4603.]—I have ridden a 1907 pattern N.S.U. 1¼ h.p. lightweight over 13,000 miles, and have kept accurate records of my expenses over the whole of this distance:

	Cost per mile.
Petrol (126.3 miles per gallon) ...	0.114d.
Oil (3,000 miles per gallon)	0.015d.
Tyres (S.E. studded mostly)	0.082d.
Belts	0.013d.
Pulleys	0.017d.
Collan oil, plugs, etc.	0.011d.
Total running expenses ...	0.252d. per mile.

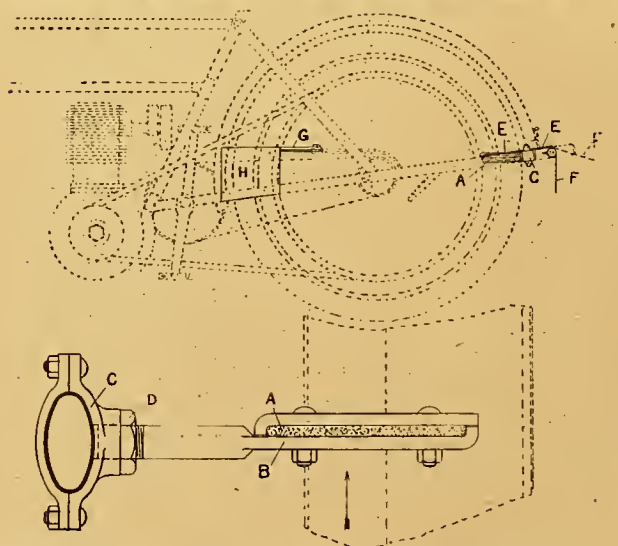
I have found the round twisted belt satisfactory if well dressed and on suitable pulleys, while my S.E. tyres have never punctured. The machine has been a model of reliability, the only serious defect being the breakage of a front fork. (The same machine now has spring forks.)

I must add, I suppose, the usual disclaimer. TEN STONE.

How to keep a Belt Dry and Clean.

[4604.]—In the issue of February 7th a correspondent has described an excellent method of keeping the belt clean. The placing of the brush upon the rear stays, as shown, is, however, open to the objection that the mud removed is unable to fall clear, but drops again upon the belt, rim, and frame.

The accompanying sketches show another position for the brush, which is free from this objection, and renders the



device less conspicuous. The brush A is held in a flat clamp B carried on the left leg of the stand. This leg being of oval section gives a firm support to the base C of the clamp. The width of the brush at the end of the bristles is two and a quarter inches, sufficient to clean the top of the belt and the outer circumference of the belt rim. When removing the belt one can slacken the lock-nut D and let the brush hang downwards.

The sketches show also: (1.) A horizontal shield E fitted across each of the bottom corners of the stand. (2.) A flap F pivoted on the crossbar of the stand swings out when machine is in motion, as shown by dotted lines, and is prevented from swinging forward at any time by a stop. (3.) A chain guard G, which forms an extension of the free-wheel cover, and is supported at the front by a vertical plate H passing down to and around the right chain stay.

These fittings are quite simple to make, and if done neatly they do not spoil the appearance of the machine, while they greatly reduce the labour of cleaning. CYRIL J. FEENY.

Finish for All-weather Machines.

[4605.]—"Pretty bits of plating may help to sell a machine to a novice, but I do not think a practical man wants them."

The above paragraph appeared in a letter received by my firm from a gentleman concerning the enamelling of all parts of a motor bicycle with the exception of handle-bars. From an economical point of view this would be a gain for the manufacturer, but not so for the purchaser. I ride twenty-seven miles daily backwards and forwards to business, and experience has taught me how careful one has to be to prevent enamel being scratched when removing mud from the frame be it wet or dry, and how quickly enamelled spokes get chipped and look shabby, and what an enamelled nut looks like, a spanner having once been applied to it. Plated parts with a little care last good for years.

For those who object to cleaning their machines after every ride, all that is necessary is to give the plated parts a thin coating of vaseline, allowing the mud to remain till a convenient time arrives to clean. Those, however, who like their machines cleaned frequently need not vaseline the plated parts, and should by any chance their machines be allowed to remain dirty for a day or two no damage will be done so long as they are kept in a perfectly dry place. When machines are sent us for repair or overhauling after two or three years of hard wear the enamelled parts are more or less, chipped and rusty. The frames and mud-guards often have large patches of enamel scraped or worn off, with rust eaten deep into the metal. In nearly all cases, however, the plated parts are free from rust.

Black enamel suffers most severely by wet or hard wear and coloured enamel more so, whereas plating, if kept dry will last for years. F. HULBERT.

Lightweights v. Heavyweights.

[4606.]—The letter by "Rus in Urbe" has amused me somewhat, but why does he not publish his name? Is he afraid of it? or does he not wish me to know that he really knows me and the work I do? Anyway, I prefer to answer a known rather than an unknown criticism, and so perhaps when he writes his apology to me in the next issue for his implying that I was lying in what I said, he will sign his own name in full.

Now in answer. He is criticising what he does not know or understand, and so is unfair, as most foolish people are under those conditions. My work does not consist in looking after one little tiny village in this part of Sussex. First of all, I am superintendent to a large orphanage, and my work consists mainly in that, hence I am called on to visit and ride to all parts of the country on business, and as fast as possible in all weathers, and at all times I use my motor cycle for the work. I do a very great amount of town riding, and know probably as much of traffic as most riders do. I am, in fact, constantly in a town near here on business, and if he saw me in Brighton, or Horsham, at work he would see how, why, and where a great many stops come in. Moreover, he criticises both my work and district, of which he evidently knows nothing. I have in my charge besides the orphanage here, a district some fifteen miles across, and very many of the villages have as many as ninety to a hundred houses scattered over two or three miles, and I have persons to see and visit in one village of 190 houses to the number of twenty-seven, and they are all scattered over a district of two miles. Again, if he knew the work I spoke of, he would be in a position to criticise fairly, and to see how it is necessary to make many stops in 117 yards. Has he any experience of boy scout work, has he ever laid trails for them to track, has he seen me on and off the motor doing this every hundred yards or so? (I use the machine for my work for the boys here.) Then again, does he know that I experiment when I have a chance with all sorts of measurements, and also all sorts of improvements for motor

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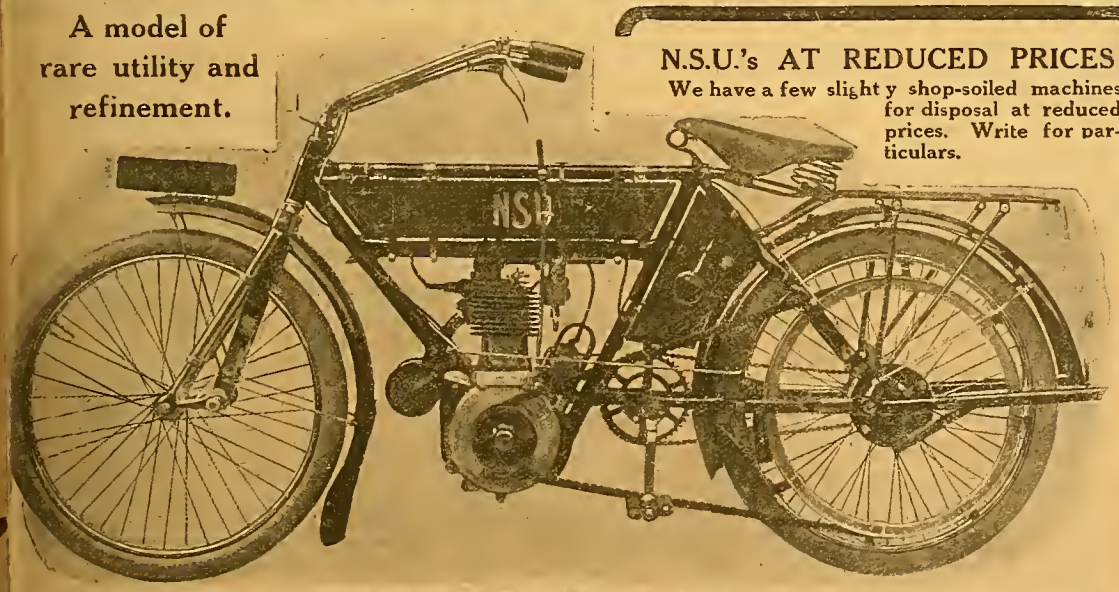

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This machine has 85 x 88 engine, double row ball bearings to engine shaft, gear driven F Bosch magneto, handle-bar control, M.O.I.V., low frame, internal expanding brake and belt rim foot brake, spring forks.

3½ h.p. Model de Luxe
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Long comfortably arranged handle-bars, rear half of back mudguard detachable, stand, carrier, tool case, etc. Can be fitted with two speed gear and free engine pulley at extra cost.

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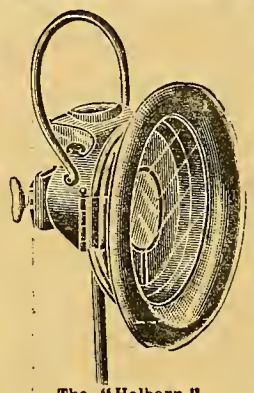

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The "Holborn" Condensing Lens Motor Cycle or Tri-Car **Headlight.**

Complete with separate generator and length of tubing.

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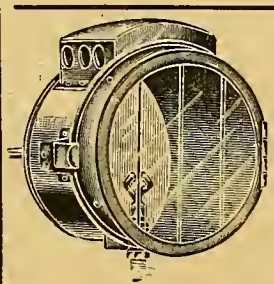

The Lens Mirror Motor Cycle Headlight, complete with generator.

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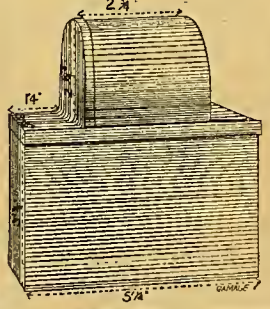

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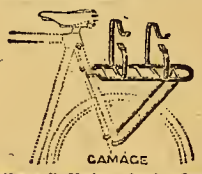

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With detachable glasses and leather shield.

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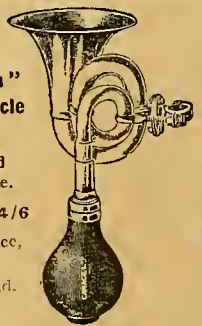

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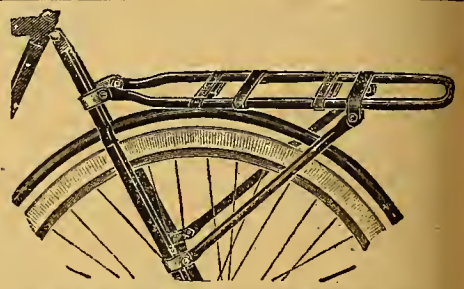

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The 'Holborn' Plug.

A thoroughly reliable little plug, which does not soot up or short; nicely finished and of the best materials. As good a plug as anyone could wish for, and at manufacturer's price. When you buy a "Holborn" Plug, you do not pay for a fancy name, you get a shillingsworth of plug. Try a **1/-** 'Holborn' next time. Complete with cap and washer,

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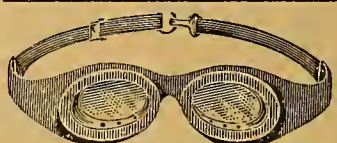

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LONDON E.C.

In answering this advertisement it is desirable to mention "The Motor Cycle."

cycles, and that the information is got for the purposes of the engineering shop that we have here for the boys, and where the boys are taught, so that sometimes we are out on the road, stopping and starting at all sorts of distances? Now if "Rus in Urbe" would use discretion before he rushes into criticism of the work I do, and if he knew the country round here, and knew that there are more than one or two houses every two miles, then he might have some reason to speak; moreover, he says I speak from country experience only. Has he verified that, because again he is wrong. I also ride and use my machine in town; in fact, I am just back from Southampton, where I have been working for two days, and using my machine the best part of the day, dodging traffic, etc., and I still say I prefer what I have, a good reliable heavyweight (or medium weight as the Triumph is), after having had a lightweight or two, and having ridden several for the purpose of experiment, just because in my opinion for all-round work the heavyweight gives me less trouble, and is more reliable than any lightweight I have tried, bar (as I said) the P. and M. No, "Rus in Urbe," you criticise unfairly, and I ask for an apology for saying or implying that I was lying, because you know nothing of myself or my work, and you cannot gather it either from maps or directories. You like the lightweight best. I prefer the heavyweight for my work, but it does not say, as I said in my letter, that either of them is the best in all things. (Rev.) R. MEASURES.

West Grinstead.

Standardisation of Rims and Tyres.

[4607.]—We hear a great deal just at present about the great improvements that have been and are being made in motor cycles. I think there is one point in which there is room for much improvement, and that is in the standardisation of rims. This week through a bad burst in my back tyre I had to order a new cover from a well-known firm. On arrival it was, though stamped 26 × 2¼, found to be a great deal too large for the rim. Result, a delay of two or three days before I can obtain one that will fit. The delay does not matter a great deal at this time of the year, but would be most vexing if it had occurred in Easter week, or any time for that matter during the spring or summer (if we have any). EX-LIGHTWEIGHT.

[We have repeatedly referred in leading and other articles to the question of standardisation of rims and tyres. We also published on May 22nd, 1907, information obtained from tyre manufacturers as to the different sizes of tyres of their own make, which are interchangeable on one rim. The number of makers has increased since that date, but we do not think we are any nearer to a solution of the difficulty. The best course for readers to adopt when ordering replacements is to specify the same make and size again, except when they wish to change from 2in. to 2¼in. of the same make, when no change of rim is required with the following: Clincher, Continental, and Dunlop. Palmer 2¼ and 2½ tyres fit the 2½ rim, and 2¼ tyres will fit the 2in. if clearly specified when ordering. We shall be glad to publish the names of any other tyres which are interchangeable.—ED.]

Variably Geared Lightweights.

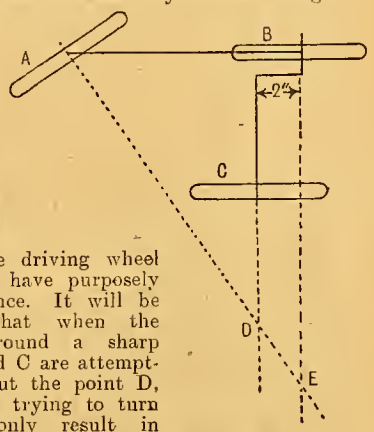
[4608.]—With reference to your leaderette in the issue f February 14th, "Variably Geared Lightweights," with he pith of which we fully agree, we wish to call your, and, hrough your courtesy, also your readers', attention to the act that we can now supply, in addition to our ordinary o. 1 model Nala gear for twin machines and passenger ork, the new No. 0 model, which is especially designed for ghtweight machines and single work. This new model hub ear is a copy of its larger brother, but very much lighter hroughout and weighs only about 17 lbs. Being a hub-ear and built into the back wheel, it adds no weight whatver to the frame and has proved to be suitable and efficient n any of the lightweight machines at present on the market, o matter how light the frame and small the h.p. We do ot care further to decrease the substance (and weight) of is hub, as we consider it impossible to do so without a crifice in reliability. Indeed, the next step towards lightess would be a type of pedal cycle two or three-speed gear s at present on the market with which we have experiented on a lightweight machine, and, even under least exting conditions, our tests usually ended up in obtaining a "permanent free engine position." It is obviously necessary, in order to obtain a satisfactory and lasting two-speed gear on a lightweight, to add a certain amount of weight, and we maintain that an additional weight of about 17 lbs. is not excessive in view of the distinct advantages gained in several other directions. Speed need not be sacrificed, as it will be possible, with a second speed and free engine, to gear the machine higher for top speed.

We are prepared to place a new model "lightweight" hub at the disposal of any manufacturer of lightweight motor cycles for experimental purposes. Incidentally, we may also remark that we hope, before many months are past, to be manufacturing the Nala gear throughout in this country. THE NALA HUB CO.

A. HOTOPF.

Steering of Sidecars.

[4609.]—In the issue of February 14th I see that my friend Mr. Herbert Porter tells how he has overcome his difficulty in steering a sidecar combination. Since he explained the matter to me the other day I have thought it over, and, as the real fault is obviously one of design, and deserves the serious attention of makers, I venture to give a short explanation.



It appears that Mr. Porter's machine is "cranked" in the frame, so that the side wheel axis is two inches in front of the driving wheel axis. In my sketch I have purposely exaggerated this distance. It will be seen at a glance that when the machine is turned round a sharp corner the wheels A and C are attempting to turn round about the point D, whilst A and B are trying to turn about E. This can only result in straining the framework, and it is liable to set up slipping or grinding at the road surface, and perhaps wobbling of one or more of the wheels.

Since the principles underlying the Ackermann type of steering four-wheeled cars are so well known, it is surprising that they should be overlooked in designing the far less stable three-wheeled combination. To apply the principle here is simply to ensure all three axes of the wheels meeting at a single point, and it is clear that this can only be done by keeping the axis of B in line with that of C.

J. H. LESTER.

SUMMARY OF CORRESPONDENCE.

"EJ 61" strongly eulogises the Star detachable belt fasteners with extension hook, made by S. T. Robson, 59 Holmoor Road, Birmingham, and says: "They never pull through, owing to the spiked fastening; are very easy to fit, owing to the peculiar worm on the screw; and the one extension hook with its three holes does away with the necessity for short bits of belt. One I have had in use over 2,000 miles appears good for twice that distance still."

EXPERIENCES WANTED

"R. B." (West Ealing) wishes to know if any reader can recommend a two-speed gear for belt transmission to be fitted in front of crank case and to run at half engine speed, rotation of engine not to be reversed.

"Willoughby" (Ledbury) would like readers' experiences with Palmer Cord, Shamrock-Excelsior (rubber-studded), and Kempshall non-skids on the driving wheels of twin-cylinder motor cycles with sidecars.

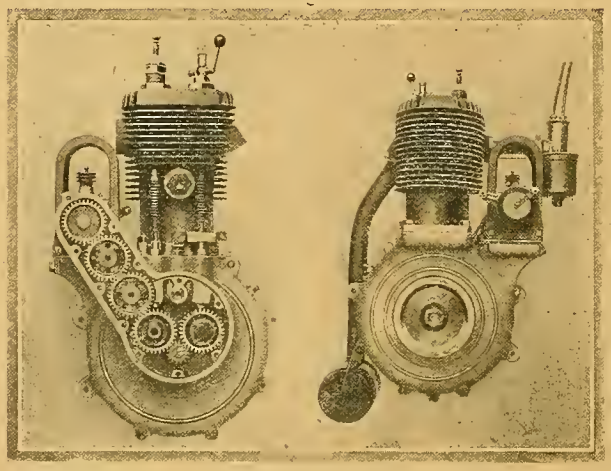
"E. G." (Johannesburg) would like to hear from any reader who has visited Vladivostock in recent times, who could inform him if it would be any use taking a motor or pedal cycle to that town. He expects to be a resident there for about two years.

"H. S." (Liverpool) would like readers' experiences with the L.M.C. Auto Variable pulley and free engine on a 3½ h.p single-cylinder motor bicycle with sidecar.

A NEW PATTERN 3½ h.p. PREMIER.

NOTWITHSTANDING the success attained by the 3½ h.p. single-cylinder Premier as exhibited at the Stanley Show, the makers have not allowed grass to grow under their feet, and, in addition to redesigning the machine throughout, have adopted a new feature in their engine which promises to solve most of the common difficulties with present day engines, such as knocking, overheating, and exhaust valve troubles. This feature is in connection with an auxiliary exhaust release, and, whilst being new to touring motor cycles, is a common feature of engines on racing motor cycles and aeroplanes. The manner of arranging an additional exit for the burnt gases in the case of most racing and aeroplane engines is crude to a degree, holes merely being drilled in the cylinder walls, and the gases allowed to exhaust into the open air.

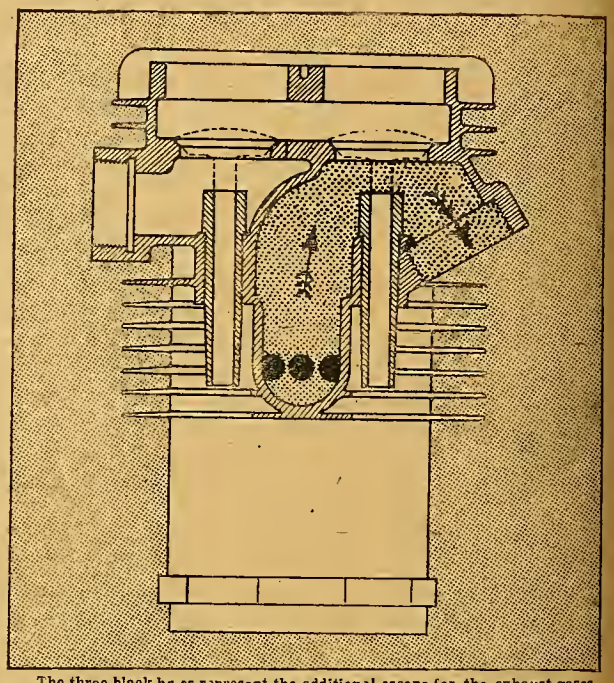
In the case of the Premier engine, which is shown in section in the accompanying line drawing, much



Left and right hand views of the engine, showing the gear drive for the magneto, and aluminium platform for the latter at the rear of the cylinder.

care and ingenuity have obviously been displayed in the design, as the gases which emerge when the piston reaches the bottom of its stroke are conducted upwards along a passage formed in the cylinder to the exhaust pipe and silencer, intermingling with the gases issuing *viâ* the exhaust valve. The result of this design is a neat looking engine, the additional exhaust outlet being quite unnoticeable except for the inspection cover seen in the left of the two half-tone illustrations of the engine.

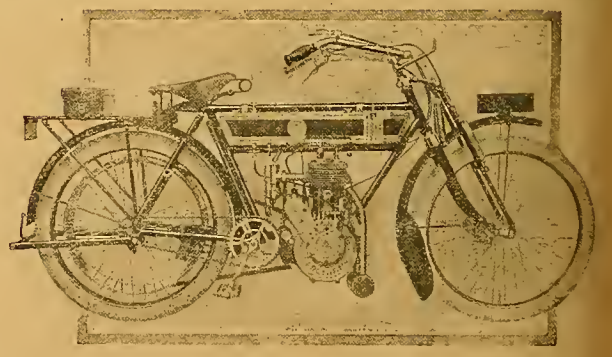
For the benefit of novices, we may explain that the main object of auxiliary port holes is to get rid of the hot gases more quickly, and so enable the engine to run at a cooler temperature, which of course means an increase of power and less likelihood of knocking and pitting of the exhaust valve seat. Just before the piston reaches the lowest point of its travel, the three holes (shown black in the illustration) are uncovered and the burnt gas allowed to escape under pressure, the scavenging action of the piston on the next upward stroke completing the work of cleansing the cylinder of any burnt gas remaining, the exhaust valve being open during this stroke. It will be obvious that the exhaust valve is in this manner relieved of much of the burning action usual with engines of the orthodox type. Moreover, by completely scavenging the cylinder, a bigger charge is induced on the next down stroke. It is a matter of small wonderment



The three black holes represent the additional escape for the exhaust gases when the piston reaches the bottom of the firing stroke. The gases are conducted along an enlarged chamber and emerge, as shown by the arrows, *via* the exhaust pipe and silencer.

that some such idea has not already become general, as there is no extra complication in the slightest, yet the benefits accruing are agreed to be considerable.

The bore and stroke of the new engine are 85 × 88 mm., representing a cubical capacity of 499.4 c.c. The valve timing gear has been rendered extremely simple. At the back of the half-time wheels, cams



The 1910½ pattern Premier with auxiliary exhaust release holes in the cylinder.

are formed operating the tappets by means of large steel balls carried in their ends. Thus no bell cranks are used. The radiators on the cylinder casting are parallel and vertical on the combustion head to assist in cooling.

The magneto on the new model is mounted at the

A New Pattern 3½ h.p. Premier.—

rear of the cylinder on a platform cast integral with the crank case, and is gear driven. This has necessitated the B. and B. carburetter being moved further back, and we are told that the longer induction pipe has had a beneficial effect on the running of the engine, ascribed to a more perfect mixture. The suspension of the engine has also been improved, and by rendering the power unit more compact, it has been found possible to shorten the wheelbase of the bicycle. Other lesser important innovations are in connection with the spring fork, and a more convenient position for the lubricating pump, the latter having been moved from near the saddle to an inclined position at the forward end of the tank. Every part of the new Premier has been designed with an eye to accessibility, and the centre of gravity has been kept low.

We expect a good deal of this new model, and the makers are to be congratulated upon their enterprise and originality.

CHECKING IN RELIABILITY TRIALS.

A REPLY TO "D. E. A."

By FELIX SCRIVEN.

WHEN the system of checking which I described in *The Motor Cycle* of February 14th was under discussion by the Bradford M.C.C. Competitions Committee, the point which "D. E. A." alludes to was brought up in argument against the proposed system.

In practice, however, we have not found the production of the watch to cause any undue delay. As stated in my description of the system, the sealed watch case can be fixed to the handle-bars of the machine or strapped to the arm or wrist of the rider.

Out or Home Book A

CHECK..... miles to.....

..... miles from.....

Competitor's No.....

Time.....

Checker's Sig.....

A leaf from the Bradford M.C.C. Checking Book.

Personally, I adopt the former idea, as the watch is then always under the eyes of the rider. A checker is generally visible at least thirty or forty yards before reaching the spot at which he is taking the check, and I hold that any machine fit to be on the road should be easily capable of being stopped in that distance by the brakes when travelling at 20 m.p.h.

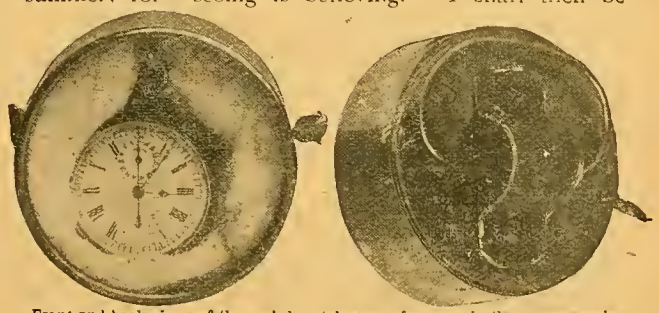
If the competitor attaches the watch case to his arm or the handle-bar, he does not even need to move from the saddle until the time has been read from his sealed watch by the checker, for he has only to put his feet to the ground as soon as the machine is at a standstill.

Now I contend that a good reliability trials rider should "expect" a surprise check at *every* milestone *en route*, and he should be on the look-out for a checker as soon as he knows that he is nearing the "danger zone" of a mile-post, and also that, to pull up with promptitude and to have his watch case sufficiently accessible to be able to produce the same with alacrity, is one of the things a competitor must learn if he is to be successful.

Furthermore, should a competitor really find that in producing his watch he consistently loses a few seconds by delay, he can obviously overcome this difficulty by always riding just a few seconds ahead of his scheduled time.

From personal experience, both as a checker and competitor, I have every confidence in recommending the system, and I think it is safe to say that all members of the Bradford M.C.C. who have taken part in these competitions will confirm my statement.

I have not the pleasure of recognising the identity of "D. E. A.," but should the distance not be too great for him, I should be only too delighted to tender him an invitation to attend one of our trials during the summer, for "seeing is believing." I shall then be

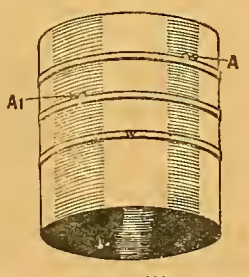


Front and back views of the sealed watch case referred to in the accompanying article.

pleased more fully to explain any details, so that "D. E. A.'s" club may some day enjoy the freedom from "checking grumbles" which the Bradford Motor Cycle Club now enjoys.

A NEW DESIGN OF PISTON RING.

VARIOUS methods have been adopted for preventing the slots of piston rings from getting into line, the latest to be brought to our notice being the invention of Mr. R. Webb, 30, Glyn Road, Homerton, N.E. Mr. Webb manufactures piston rings with a small semi-circular boss on one edge which fits a corresponding recess in the piston groove. The result is that the rings cannot move circumferentially, but are said to be otherwise perfectly free. Mr. Webb has tried the rings on a motor bicycle, and assures us that the results are as good as, if not better than, he anticipated. The device is provisionally protected. The appended sketch clearly illustrates the nature of the invention, the bosses and recesses A and A_1 preventing the rings from moving, and, in consequence, the slots from getting into line.



COMPRESSION.

By ERIC W. WALFORD.

EVERY keen motor cyclist knows the importance of having good compression, but very few realise why compression is of such importance, as it would appear that the compression stroke must absorb a considerable amount of power, and it is difficult to see how any advantage is gained. The operation of the steam engine is extremely easy to follow. Steam enters the cylinder when the piston is at the top of its stroke, and forces it down to the bottom of the stroke, whilst on the return stroke the piston forces the steam out. In the petrol engine three of the four strokes of the Otto cycle are easy to comprehend, but the fourth presents considerable difficulty to the lay mind.

In the olden days of muzzle loading rifles it will be remembered that it was customary to ram down the powder hard before inserting the bullet. Here is an analogy. The charge was compressed before it was fired, but the reasons in both cases were not exactly the same. The impact from gunpowder is, however, greater when the powder is compressed than when in its normal state, as can be easily verified.

Non-compression Engines.

Early gas engines—which, of course, were the forerunners of the petrol engine—worked on a non-compression cycle and very closely followed the steam engine in operation. As the piston started on the down stroke it sucked in gas for about half a stroke, the inlet valve was then shut and the gas immediately fired, an impulse being thus obtained which took effect for the remainder of the stroke; on the return stroke the burnt gas was exhausted. An indicator diagram somewhat resembling fig. 1 was obtained. The line A D represents the piston's travel. From A to C suction took place, and the pressure in the cylinder fell below that of the atmosphere, the line A D being taken to represent atmospheric pressure. At C the charge drawn in was fired and the pressure went up rapidly to B, gradually falling as the piston travelled outwards and expansion took place. Engines working on this system, invented by Lenoir, were very inefficient in comparison with present day engines, and also gave very little power for their size and weight. The consumption worked out at 80 cubic feet per indicated horse-power per hour, and a 3 h.p. engine weighed more than three complete motor bicycles nowadays. Present day engines consume about 20 cubic feet of gas for the same work.

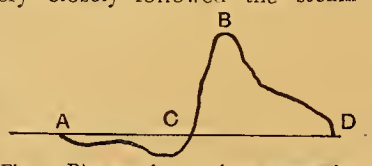


Fig. 1.—Diagram of curve of non-compression engine.

Loss of Heat to Cylinder Walls.

Now for the reasons why this should be so. It will immediately be noticed that, in comparison with the present day engine, suction only took place for half the stroke, and therefore only half the volume of gas was taken into the cylinder as compared with the modern engine. Again, at the moment of ignition, half the surface of the cylinder walls was exposed. In order to obtain efficient working it is essential that a minimum surface be exposed at the moment of ignition, so that the heat generated be not lost to the cylinder walls and radiators, or water jackets in the case of a water-cooled engine. The cylinder, radiators, and jackets are essential for other purposes, but they may be looked upon as necessary evils in the matter of efficiency. In the Lenoir or non-compression engine at the moment of ignition a great deal of heat was lost to the water jacket, so that the pressure obtained was nothing like as high as would be the case if a smaller surface were exposed.

The Proportions of Combustible Mixture.

By compressing the gas a very much weaker mixture can be used. In the older Lenoir engines the best results were obtained with a combustible mixture of a proportion of sixteen to eighteen parts of gas to one hundred of air, whilst in the modern engine this ratio is seven to ten parts of gas to one hundred parts of air. The particles when compressed are closer together, and less time is taken to effect combustion, and more power is thus got out of the compression engine. The same applies to the combustible mixture in modern engines. That is to say, a high compression engine would be more economical in running than a similar engine with a lower compression, provided the conditions were not altered.

Again, in an engine with a high compression there is less space that is not swept by the piston, and consequently less exhaust gas is left in the cylinder to dilute the next charge.

Indicator Diagrams Compared.

In fig. 2 are given two indicator diagrams taken from a gas engine in which the compression had been raised. As before A D indicates the piston stroke as usual, and the curve shows the rise and fall of pressure on the

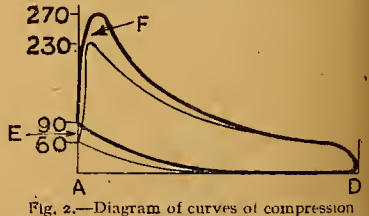


Fig. 2.—Diagram of curves of compression engine

Compression.—

compression and firing strokes. The line D E shows the rise of pressure as the piston moves back to compress the charge. After ignition the pressure rises to F and falls gradually to D. It will be noticed that there are two diagrams, one shown as a thin and the other as a thick line. Dealing first with the thin line diagram, the compression was brought up to 60 lbs. to the square inch. On ignition the pressure rose to 230 lbs., and fell gradually till just before D was reached, when the exhaust valve opened. When the compression was raised to 90 lbs. the maximum pressure went up to 270 lbs.

It is not possible to give an exactly similar diagram taken from a modern petrol engine, owing to its very high speed, but the one reproduced serves to show roughly the effect of raising the compression, and as the area contained by the diagram is representative of the power the engine gives, it will be noticed by rough measurement that the power developed with the thick line diagram is very much greater than with the thin line diagram.

Disadvantages of Too High Compression.

During the last few years the compression in motor cycle engines, especially for competition purposes, has been raised considerably above what was the case a few years ago. This has resulted in very much higher efficiency—that is to say, the power obtained from a given engine and also the fuel consumption have been improved. There are, however, certain causes which limit the compression pressure. These are chiefly (1) preignition, especially at low engine speeds, (2) the necessity for a large flywheel, (3) difficulty in starting and running slowly, and (4) great stress or strain on the parts of the engine.

Generally speaking, the effect of raising the compression in an engine of given dimensions is to increase the power and the speed obtainable from the engine, but the gear ratio employed between engine and road wheel must be lower. A high compression engine will run very much faster than the same engine with a low compression, and will give more power, but at a higher speed. It is useless, therefore, to expect such engines to develop the same power at low speeds which they do with the lower compression. This has been expected with such engines, with the result that they have been said to "overheat."

I have obtained exactly the same effect with a water-cooled engine on a car, this engine having very high compression. It was found that the engine would give very high power at high engine speeds, but directly it slowed down it knocked and gave all the symptoms of "overheating" experienced with racing machines.

Different Methods of Raising Compression.

From the above remarks I do not wish it to be taken that the compression should be high, and I cannot recommend anybody with a standard engine to raise the compression except by a very small amount, and then only if it has been proved to be too low. The compression of an existing engine can be best raised by using deep caps over the valves, which is the simplest and safest method. Other methods are:

(1) To bolt a plate on the top of the piston, which is bad practice, as it is difficult to secure, and upsets the balance of the engine. It would also be likely to cause preignition on account of irregularities.

(2) To lengthen the connecting rod. This again upsets the engine balance slightly, and if the connecting rod is much longer than the old one it may foul the cylinder whilst at half-stroke.

(3) To turn off a portion of the bottom of the cylinder, and so lower it in relation to the piston. As the cylinder is bolted to the crank case by a flange or web at its lower end, it is obvious that this method will weaken the cylinder at this most important point.

(4) To fit a longer piston. This may bring the piston above the cylinder port, and it may upset the balance.

All Leakages must be Avoided.

It is far better to obtain *good* compression than a high compression in the engine; good compression means absence of all leakage. If there is any leakage

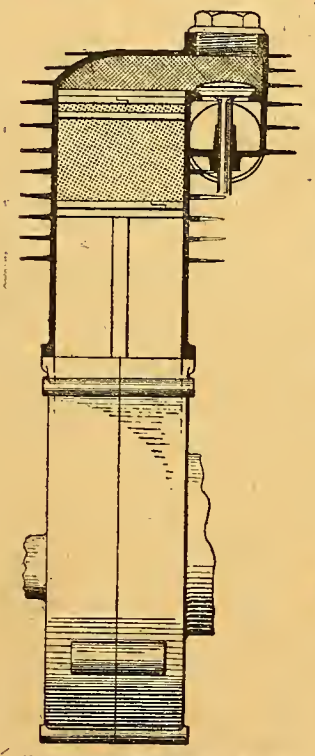


Fig. 3.—Showing piston at the top of its stroke.

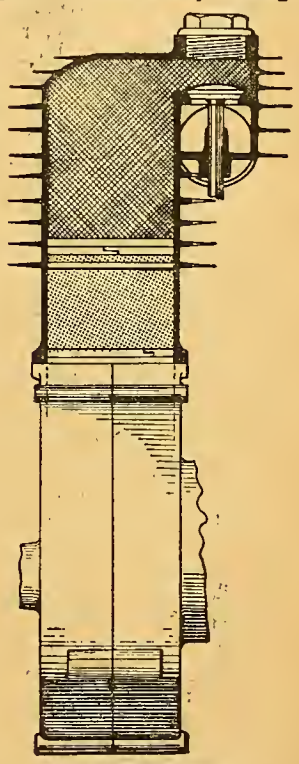


Fig. 4.—Showing piston at the bottom of its stroke.

the engine will draw in air or waste gas through this leakage on the suction stroke, slightly reducing the filling of the engine with fresh gas. On the compression stroke part of the gas in the cylinder will be forced through the leakage, and on the firing stroke more of the gas under pressure will leak through, and the pressure fall. It is therefore not only necessary on the compression stroke to have absolute gas tightness, but also on the other strokes.

The altitude and barometer reading both have their bearing on the compression pressure and also on the output of the engine, and atmospheric pressure may effect a relatively large variation in power. In the British Isles, where roads are not at a very high elevation, as in some other countries, a range of compression between 60 and 90 lbs. per square inch in the same engine can be obtained, so that natural causes have a considerable bearing on the power of the engine.

Compression.—

It is extremely difficult to measure actually what will be the compression in any given engine, as it is affected by the temperature, and the amount of this is an unknown quantity. There are formulæ for this purpose, but they will not interest the majority of motor cyclists. Generally speaking, the temperature is ignored, and the compression pressure considered at normal temperature. For this purpose one must know the total volume inside the cylinder and the valve ports, both when the piston is at the top and the bottom of its strokes. Assume, for the sake of argument, that when the piston is at the top (fig. 3) the volume shown shaded is five cubic inches, and when the piston is at the bottom of the stroke, as shown in fig. 4, twenty-five cubic inches. We can then ascertain the theoretical compression, ignoring temperature. The pressure of the gas in the shaded part of fig. 4 is at atmospheric pressure—that is to say, roughly, 15 lbs. per square inch. If now the gas be compressed into a space of half its previous dimensions the gas is raised to twice its original pressure—that is to say, 30 lbs. per square inch. If compressed into a volume one-third of its original dimensions the pressure is raised three times —that is to say, 45 lbs. per square inch. From this we obtain the rule—

$$\text{Compression pressure} = 15 \times \frac{\text{Shaded volume in fig. 4} = 25}{\text{Shaded volume in fig. 3} = 5}$$

Working out our figures on the lines of the above rule, it will be seen that the compression in the theoretical case being dealt with is 75 lbs. per square inch. It is therefore possible for anybody to ascertain in this manner what the compression of his engine is, provided he can find out the volumes shown shaded in figs. 3 and 4. It is possible to calculate these roughly for experiment, but the best method is to set the piston as shown in fig. 3 and see that both valves are tightly closed. Then pour in some innocuous liquid, such as very thin oil, which will not adhere to the cylinder, so as to fill up the whole space and not leave any air bubbles. This liquid should be accurately measured in pouring in. As the volume is ultimately required in cubic inches, the amount of liquid poured in must be transferred to cubic inches. (It may be useful to mention that one pint of water equals 34.6 cubic inches.) Having ascertained what fraction of a pint fills the shaded space, the cubic inch capacity can be ascertained by taking the same proportion of 34.6.

Having effected this very carefully, and seen that no bubbles exist, the engine should be turned round till the piston is at the very bottom of the stroke. Further liquid must now be added to bring the level the same as before, and this additional liquid must be measured and the measurement added to that previously obtained. You now get two values—one that of the gas drawn in (fig. 4) and the other of the gas compressed (fig. 3).

THE FUTURE OF THE END-TO-END RECORD.

WHAT is going to be done about the End-to-end record? The existing figures imply a nett average speed of close upon thirty miles an hour. Allowing for even brief stoppages, any successful attempt upon the record probably necessitates a gross average of over thirty miles an hour. Much of the route compels speed to be often reduced for a mile or two at a time to less than legal limit. One or two long stretches convert legal limit into a temporary maximum for considerable distances, *e.g.*, across the factory districts of Lancashire, and during the portion ridden in darkness. Ultra high speeds over much of the road are inevitable. Any danger, whether to the rider or the public, arising from the above considerations is greatly enhanced by the fact that the rider's vitality is almost always sub-normal for a period at any rate of the ride.

Will Higher Powered Machines be Used?

Consequently, if the attempts are recommenced this next summer, two very unpleasant possibilities are on the *tapis*. One is that some very decent young sportsman—an undergraduate or an example of our best type of amateur clubman or trade rider—may be either seriously injured or killed; the other is that some accident may occur to a third party. This will bring great discredit on the sport, and may have exceedingly nasty consequences for any firm of manufacturers concerned in organising what is plainly an illegal advertisement. The possibilities are enhanced when we remember that few modern aspirants depend upon personal knowledge of the route. The average aspirant depends over each section upon a leader, mounted on a fast machine, who pilots him over the tricky portions of the route, while from three to six followers hang on his heels, prepared to take the lead in the event of any mishap to the original pilot. Thus we have all the ingredients essential to a very pretty smash. If a catastrophe occurs, as is easily possible, the consequences will be disastrous in the worst sense to the immediate participants, while they will further reflect heavily on the trade and the pastime.

Further Attempts Anticipated.

It may be said that the record figures are already reduced to vanishing point, and that further attempts are improbable. This contention is contradicted by facts. Unsuccessful attempts have already been made upon the existing record; and these attempts have not been merely the forlorn hope of amateur sportsmen, but the organised advertising campaigns of commercial bodies. I personally know of several riders who are itching to have a go at the record, and amongst them I could name men who are seriously disqualified both by physique and mentality. Numerous attempts may be anticipated, and some of them will be made on faster machines of higher power than any which have so far aspired to honours over the route. I have already stated the dangers of giving those interested a free hand, as they appeal to me personally; and I am strongly of opinion that further attempts ought to be stopped with a strong hand. If authorities differ, it is none the less possible to control further attempts. If the Auto Cycle Union and its affiliated clubs announce their intention to place a life suspension upon any individuals, firms, or clubs concerned, the procession will automatically cease; and if a few stray riders should ignore the ban, they are not likely to get very far without backing from the trade.

B. H. DAVIES.

Oxford M.C.C.

Nine new members have recently been elected, making a total membership of fifty-eight.

Leeds M.C.C.

The dinner and distribution of prizes at headquarters took place on Friday last. The new president (Mr. Rowland Winn) presided.

Worcestershire M.C.C.

The A.G.M. will be held at headquarters, Golden Cross Hotel, Bromsgrove, on Saturday, March 12th, at 6.30 p.m. All motor cyclists in the district who are not at present members of the club will be cordially welcomed at this meeting.

Dublin and District M.C.C.

With the object of furthering the pastime of motor cycling by promoting competitions and sociability amongst motor cyclists, the committee of the above club requests the support and co-operation of Dublin motor cyclists. The annual subscription is 7s. 6d., and the honorary secretary will be pleased to hear from prospective members at any time. The printed programme, with full particulars of all events, will be ready early in March.

Liverpool M.C.

The committee has arranged the following programme for March at headquarters: Tuesday, 1st, semi-final and final matches, billiard handicap; Friday, 11th, Dr. Larkin's lantern lecture entitled "Places of interest from River Mersey to River Wye"; Thursday, 17th, return billiard match with Manchester Motor Club; Friday, 18th, committee meeting, instead of 25th; 25th to 28th, headquarters for Easter, Beddgelert, North Wales, inter-club meet with Manchester Motor Club.

Harrogate and District M.C.C.

A very successful motor cycle gymkhana was held on the Dragon Road Roller Skating Rink on Saturday evening, February 19th. The events, with winners, are as follows: Slow race, Mr. W. Grange riding a lightweight N.S.U. Musical chairs, Mr. F. Bagshaw (T.T. model Rex). Obstacle race, Mr. H. Fortune (3½ h.p. Triumph). Foot and wheel race, Mr. Grange, who also obtained the special prize for the best performance during the evening. The machines represented were N.S.U., Moto Rêve, Rex, Scott, and Triumph.

Motor Cycle Club for Leicester.

The first meeting, which was announced in these columns last week, was well attended, and the outcome was the formation of the Leicester and District Motor Cycle Club. Dr. Moss-Blundell presided over a good attendance. After the approval of rules, and competitions and social outings had been discussed, the officers were elected as follows: Chairman, Dr. Moss-Blundell; treasurer, Mr. E. G. Fowler; committee, Messrs. W. T. Glover, F. J. Hill, H. J. Marsden, D. M. Paterson, H. E. Smith, and G. H. Upton; and Mr. F. C. Poecher, of 20, Granby Street, as secretary. The opening run was fixed for Sunday next, March 6th, at 2.30, when the club members will meet at the tramway terminus, Oadby, and journey to Market Harborough. Great stress was laid by the meeting upon the considerate driving of members. New members will be gladly enrolled on applying to the hon. sec. at the above address.

Burnley Victoria C. and M.C.

The newly-formed motor section of the Victoria Cycle and Motor Club are holding another meeting in the Central Commercial Hotel, St. James's Row, Burnley, to-morrow (Tuesday), at 7.30 p.m. Will any local motor cyclists who would like to join the club kindly attend this meeting?

British Motor Cycle Racing Club.

The annual subscription to the B.M.C.R.C. is two guineas, and not as stated in last week's *Motor Cycle*. To members of the Brooklands Automobile Racing Club, however, the subscription is only one guinea. The hon. secretary of the club is Mr. T. W. Loughborough, Ashleigh House, Erith, Kent.

Western District M.C.

On March 6th a paperchase has been arranged from headquarters, meeting at 10 a.m., and finishing at the Bull Hotel, Gerrard's Cross The other runs for the month of March are: 13th, Virginia Water; 20th, Barnet; 27th, Amersham.

The club is progressing favourably, several new members having been enrolled.

Manchester M.C.

Mr. A. E. Bennett gave a lantern lecture on the "Bosch Magneto" to the members of the above club, numbering some sixty or seventy, at the club's headquarters, the Albion Hotel, Piccadilly, Manchester, on the 15th inst.

The inter-club billiard match with the Liverpool Motor Club resulted in a win for the Manchester team all through. A return match is to be played at Liverpool on March 17th.

Bishop Auckland, Darlington, and District M.C.

On the 3rd March a lecture, "The Law and its Relation to Motorists," will be delivered by Mr. H. Dewhurst at the Wear Valley Hotel, Bishop Auckland, 8 p.m. On the 16th, hot pot supper and smoking concert, at 7 p.m.; and on the 22nd, lecture "A Tour on the Continent," by Mr. T. W. Craig, illustrated, at 8 p.m.—both at the Wear Valley Hotel.

Birmingham M.C.C.

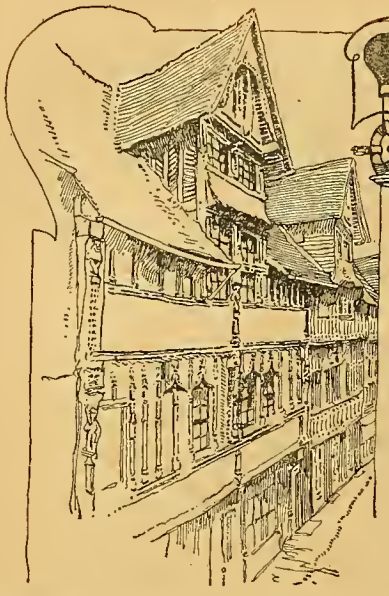
Five new members were recently elected. Readers wishing to join the club are advised to write Mr. R. Vernon C. Brook, the hon. secretary, Oakdene, Cambridge Road, King's Heath, Birmingham, at once for particulars of membership, advantages, etc., so that they may take full advantage of the 1910 competitions and fixtures. The club has now a membership of over 100, and it is hoped to increase this to 150 before the end of 1910.

Surrey M.C.C.

This club held a full committee meeting at the Angel Hotel, Guildford, on the 22nd inst., under the able chairmanship of Mr. R. Bryett. Runs, trials, and competitions proposed to be held during the ensuing season were discussed. A reliability and time trial is one of the chief events, to be held on May 25th to Lyme Regis and back, a distance of 121 miles either way. A petrol consumption trial will be held on June 22nd, and run in three classes—singles, twins, and lightweights. It is also proposed to hold a speed-judging competition on April 6th and a hill-climbing competition on September 7th.

The first of a series of social evenings will be held at the famous Surrey hostelry, the Anchor Hotel, Ripley, on March 9th next, at 8 p.m.

FURTHER NEWS FROM THE CLUBS APPEARS IN THE SUPPLEMENT.



A T.T. MODEL as a TOURING MOUNT.

IN the absence of close acquaintance with the subject, one might reasonably assume that a motor bicycle conforming with the regulations of a *Tourist* Trophy Race should be a perfectly satisfactory article for touring in the commonly accepted sense of the word. That all the machines built to compete in these events could be made to serve the dual purpose of racing and every day use cannot certainly be maintained for a moment, but having been lucky enough to hit on this admirable combination, and in view of the idea, which seems to prevail, that every maker's T.T. model is a racer and nothing more, I think a short account of my experiences with this type of machine may perhaps serve to dispel any misconceptions regarding them.

About seventeen months ago I had satisfactorily disposed of my old and well tried 3 h.p. motor cycle, and the problem of replacing it had next to be solved. The T.T. race was imminent, and being desirous of competing I reflected that it was highly improbable that the maker's standard touring machine, with its greater weight and unhandiness, would offer sufficient chance of success to justify the payment of a somewhat high entrance fee, excellent though such a machine might be for non-racing purposes. On the other hand I could not under any circumstances afford one of each model, and the prospect of purchasing a mount suitable only for use during ten days in the year could not be entertained.

A Disagreeable Voyage.

However, after some deliberation, the upshot of the matter was that the T.T. Triumph had it. The machine was taken straight from the works; and in its company I set out for Douglas, I.O.M. The crossing was disagreeable, and, as salt water spells ruination to the ordinary waterproof cape, staying on deck in any but a sheltered spot meant a thorough soaking. Still, having inadvertently reduced myself to an extremely critical condition a short while after leaving Liverpool —by sitting over a book with my back to a hot funnel in a surrounding atmosphere of greasy cooking—it became clear that if the situation were to be saved at all, there was nothing for it but to take up a position in the teeth of the wind and remain there, defying rain and spray, for the rest of the trip. Actual disaster did not, happily, overtake me, though it was with a still lingering tinge of "green about the gills" that I faced an absolutely unknown and high-powered machine, with low handle-bars and high gear. On landing at Douglas Quay I found greasy roads which did not add to my comfort, but gingerly pushing the machine off I soon discovered that, like my old 3 h.p., nothing could be more docile or tractable, and, further, that the luxury of handle-bar control must be experienced to be believed by those who are as yet unacquainted with its virtues either in racing, grease, or traffic. With more than 300 miles of "all out" to its credit, and that without a loose nut or mechanical fault of any sort to be recorded save one—a broken exhaust valve—this splendid "jigger" accomplished its maiden trip, and I was more than satisfied when, at the end of "one crowded week of glorious life," it was time to make tracks for home and work again. None the less that bent and broken valve, with its ensuing loss of so much priceless time, was to be a very persistent ghost for many a long day, for, up to the moment when disaster supervened at the eleventh hour—or, to be more exact, at the ninth round—the machine had been running superbly, and, as afterwards transpired, was at the time running into a very satisfactory place.

The Touring Side of the Question.

This, though, is not the aspect of the case with which I have set out to deal, and, to return to the touring side of the question, the machine, as it stood, did not look very promising from this point of view. Short and horizontal handle-bars, a small and unyielding saddle, short wheelbase, and plain-treaded 2in. tyres, are not popularly considered to combin in making up a sound touring specification; albeit, a good luggage carrier, toolbag and accessories, and spring forks contributed in some measure toward mitigating these drawbacks. High compression, unless in the hands of inexperienced users, cannot, I think, be regarded as a disadvantage; indeed, so great is the reserve of power at one's command with a really first rate 3½ h.p. engine, that a compression higher than the average lends just that modicum of interest to driving, which is somewhat lacking in the case of the lower compression, and consequently more foolproof, engine. In the latter case, long and winding hills with trying gradients call for nothing more than ordinary ability to negotiate them, and, provided the sharp corners can be successfully steered round, the throttle can be banged open again immediately, and, no matter how long the hill or how hot the day, the machine will see its rider through.

Different altogether is the position with high compression and with no pedalling gear to assist in picking up at the critical moment, and when, after just scraping round some evil corner on two wheels and a boot, the throttle lever is nudged tentatively forward, then it is that, more often than not with a cylinder well heated after previous hard driving, the premonitory symptoms of that fatal knock call for all the skill and care at the rider's command if the climb is to be successfully negotiated

A T.T. Model as a Touring Mount.—

It almost goes without saying that there is all the difference in the world between flying up long and troublesome hills in competition when the engine is cool and the road clear and tackling them as they come in the course of a long day's ride.

In the former case the chief requirements are a well-tuned engine and the removal of all superfluous weight. In the latter, where the machine is possibly laden with baggage, the surface treacherous, and traffic abundant, "rushing" is impossible, and a set of conditions demanding skill, sympathy, and care at once arises. To those who ride a motor cycle solely as a means of transit such situations will not appeal. Their solution of the problem is a machine of "pantechnicon" proportions, embodying in its often ungainly mass a two-speed gear and free engine—encumbrances which I avoid and they consider essential. On the other hand, all who ride for recreation and amusement and expect to derive interest from the pastime will welcome the occasions when care and ability are brought into play as opposed to the mere necessity of pressing a button and allowing the machine to do the rest.

Turning to the question of comfort, experience soon convinced me that, far from entailing the discomfort anticipated, the machine was not only extremely well adapted to touring purposes, but light and handy to an astonishing degree. After an extended experience of both standard and T.T. models, and notwithstanding the fact that I am but sparsely "covered," and can realise as well as most people the meaning of a lumpy road, nothing would induce me to return to what I cannot but describe as, relatively speaking, a "dodderer's" machine. It seems to be generally admitted that the main drawbacks to be urged against the majority of "standard tourists" of to-day are starting difficulty, weight, and unwieldiness, the former being directly due to the two latter, while the outstanding advantages of such machines are their reserve of power, ample margin of strength throughout, steadiness and comfort on bad roads, and, not least important, their large luggage carrying capacity.

An Admirable Compromise.

The T.T. machine, with its shortened wheelbase, reduced weight, and greater handiness, presents an admirable compromise between the heavy and light types of machine at present on the roads, inasmuch as, while retaining the ample margin of strength, great reserve of power and speed and general solidity peculiar to the heavier type, it exhibits much of the handiness and economy of upkeep characteristic of the lightweight. The only points upon which the latter can claim superiority, viz., lower weight, easier starting, and convenience in traffic, amount to comparatively little when examined in the light of practical experience. Taking these three points in order, the difference in weight to be found between the average lightweight touring machine and the T.T. machine is hardly likely to be more than 40 lbs.—not a great deal, in view of the very much greater capabilities of the latter. The idea that high compression and starting difficulty are as inseparable as the Siamese twins has no foundation in fact, since compression can be obviously reduced to any desired extent by merely closing down the throttle somewhat and reducing the charge. Lastly, in the absence of a clutch, it would be difficult indeed to find a machine more suited to dodging through dense city traffic than the one I am describing.

Suiting the Machine to the Conditions.

In making the foregoing comparisons and in suggesting the wider use of this class of motor bicycle for touring purposes I have naturally pre-supposed suitable modifications and adjustments to carburetter, ignition, and gear ratio to meet the altered requirements and conditions of such work.

The carburetter may with advantage be fitted with a smaller jet and the standard roadster choke tube, in order to secure slow running when needed. Opportunities for mile-a-minute bursts being few and far between on most roads, the magneto may be timed a trifle later and a somewhat more vigorous spark obtained when the ignition lever is slightly retarded.

The tyres fitted to my own machine are the 2in. wired-on Dunlop, and of these I can speak in terms of highest praise. It is as difficult to pick holes in them metaphorically as it is literally, they neither puncture, cut, nor show wear to anything like the extent that previous sets of 2¼in. tyres have done, they are notoriously fast, their removal and replacement present no more difficulty than does the beaded edge variety, they stand up on and cut through grease in winter, owing to their narrow tread, and throw up a minimum of dust in summer. Unfortunately, I have kept no accurate account of their mileage, but they are probably distinctly more economical in the long run than 2¼in. covers, notwithstanding their lighter build.

A Few Special Points.

There are, perhaps, a few more points relating to this machine which will bear detailed mention.

Two great faults of the original form of handle-bar were a necessarily bent forward attitude at all times and the difficulty of steadying the front wheel in grease. These have since been eliminated by replacing the earlier pattern with a more recent design, which, while providing a crouching position when necessary, gives ample leverage in dealing with ticklish steering conditions, and at the same time makes a comfortable upright sitting position possible. The hard saddle, which can, of course, be replaced by one of more generous dimensions and better springing, is not half so formidable as it looks, and many will find, as I did, that familiarity breeds contentment! Lastly, to deal with some imaginary evils: Engine vibration is not noticeable at any speed but the very slowest, when the engine naturally tugs somewhat on the short belt, the length of drive being reduced with the wheelbase. Excessive carbon deposit and broken valves innumerable are still other popular bogies, though I have suffered no serious annoyance from either, and, in spite of tolerably generous lubrication, the cylinder and piston can be left at this time of the year for quite 1,000 miles without scraping.

In conclusion, I trust the reader will not ascribe my expressed preference for the T.T. machine to be a lust for speed as opposed to the enjoyment of legitimate touring. Fast as these machines undoubtedly are, they are yet, as I have tried to show, a first-rate combination of two types, and can jog along at touring gait with as much ease as they skip round the Isle of Man course in twenty minutes. T. T. T.

Ignition Repairs.

Messrs. Fellows and Co., 49, Hertford Street, Mayfair, W., inform us that they have a special department for the repair of motor cycle magnetos, coils, and accumulators.

Kerry's in Bristol and Sheffield.

The East London Rubber Co., Ltd., 29-31, Great Eastern Street, E.C., have opened two branch depots for the sale of Kerry motor cycles and accessories. One is at Kerry House, Furnival Street, Sheffield, the other at 101-102, Thomas Street, Bristol.

The Care of the Indian.

"Instructions for the Starting and Care of Indian Motor Cycles" is the title of a little booklet which has just been issued by the Hendee Manufacturing Co. One of these booklets is sent out with each Indian motor cycle, and can be obtained from the Hendee Manufacturing Co., 184, Great Portland Street, W.

Scandinavian Exhibition.

Mr. George Verbeke, 15, Rue du Fort, Ghent, Belgium, informs us that he is shortly going to establish himself in Christiania, and there enter into the motor cycle and motor car trade. This year there will be an exhibition in Bergen, and English firms who would care to have their interests represented should write to Mr. Verbeke.

SPARKLETS

Export Business.

The Service Co., Ltd., are doing quite a good export business. Recently they exported two Scotts, one to India and the other to South Africa, while they have also just shipped a Motosacoche to Russia.

Fresh Appointments.

Mr. A. T. Stanton, who is fairly well-known to many of our readers as a competitor in motor cycle trials, and London agent until recently for Bradbury and Co., Ltd., has now joined the firm, and will represent them in London, and the Northern, Eastern, and Western districts.

Mr. H. W. Duret has resigned his position with the Singer Motor Co., Ltd., and has accepted an appointment with the Palmer Tyre, Ltd., as West of England representative. Mr. Duret was the recipient of a handsome present and testimonial from the directors, and he is taking up his new duties with the best wishes of his many friends.

Catalogues Received.

The Prested Battery Co., Elthorne Road, Upper Holloway, N., have now issued an advanced 1910 list containing several new and useful specialities.

The Simms West End Agency.

The Simms Magneto Co., Ltd., Welbeck Worke, Kimberley Road, Willesden Lane, Kilburn, N.W., inform us that they have come to an arrangement with Messrs. G. H. Smith and W. H. Dorey, 14a, Great Marlborough Street, W., to act as West End agents for Simms magnetos.

A Progressive Business.

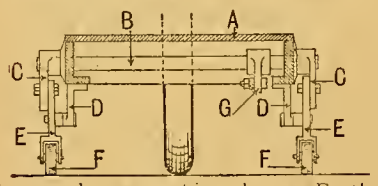
Although only established a few months as dealers in motor cycles and accessories, the Lancashire Motor Exchange, Euston Road, Morecambe, which is conducted by Mr. C. H. Hitchen, has made extremely rapid progress. The firm commenced dealing in motor cycles last September, and during the latter part of that month sold only one machine, value £38. Last month some thirty-three motor cycles were disposed of, value £800 to £900. Our readers will agree that unless the business were conducted on honest and satisfactory lines it would be quite impossible for it to increase so rapidly. Full particulars of the system upon which the exchanges are conducted will be supplied gratis.

RECENT PATENTS.

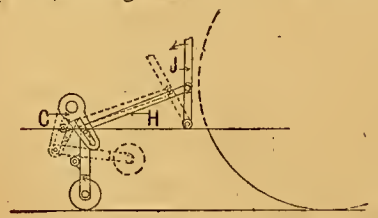
By ERIC W. WALFORD F.C.I.P.A.

Safety Supporting Device.

This device is intended for use either when the machine is stationary or travelling. Beneath the footboard A is arranged transverse shaft B, each end of which carries a slotted link C. Pivoted to brackets D carried by the



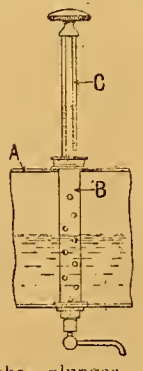
footboard are rocking levers E, the lower ends of which carry rollers F. The shaft B also carries a lever G connected by a rod H to a control lever J. When it is desired to use the support the lever J is brought into a vertical position, rotating the transverse shaft B and turning the roller-carrying levers E about their pivots, through the links C. Forward

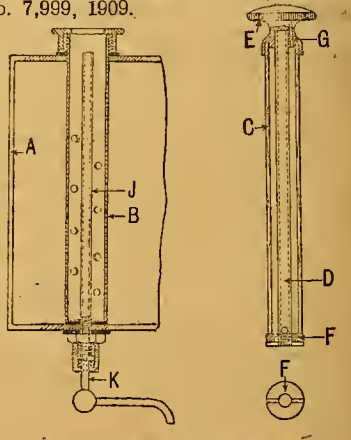


movement of the lever J brings the parts into the position shown by dotted lines, raising the rollers out of contact with the ground. The operating lever is anchored to the frame by a spring (not shown) so that the contact of the rollers F with the ground is a resilient one.—R. M. Kingsford (L. Rabe), No. 17.604, 1909.

Combined Petrol Gauge and Injector.

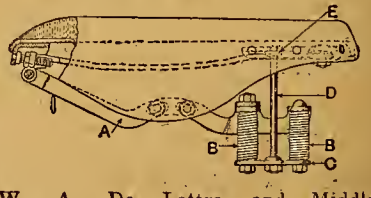
Within the tank A is secured a barrel B perforated for the free passage of the petrol. Within this barrel slides a plunger comprising a transparent tube C mounted around a pipe D by means of a knob E at the top and a nut F at the bottom. The nut F is slotted as shown, and the pipe D provided with a small hole, so that the petrol may enter the transparent tube C and find its level therein, a vent G being provided for this purpose. When it is desired to ascertain the level of liquid in the tank, the vent G is closed by the thumb or finger, and the plunger drawn up. Owing to closing of the vent G, the petrol remains in the tube C, and its level therein corresponds to that in the tank. To enable the device to be used as an injector, a pipe J is firmly secured within the barrel B, and telescopes within the pipe D. The upper open end of the pipe J is arranged to be slightly lower than the pipe D when the latter is in its raised position. If, therefore, the vent be now uncovered, the petrol will escape through the small hole in the pipe D, and drip into the pipe J, whence it passes to the desired part by way of the tap K.—J. B. Dall, No. 7,999, 1909.





A Saddle Spring Arrangement.

Each side frame member A carries a pair of tensional springs B which are bridged across by a plate C. This plate supports the rod D, which is connected to the seat proper at E.—



W. A. De Lattre and Middlemore and Lamplugh, Ltd., No. 10.357, 1909.

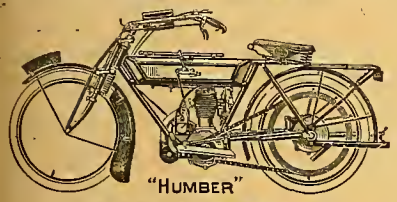
1 Humber (1909½). . £50 0 0
1 Coronet Sidecar 4 17 6

Total £54 17 6

The above sum represents the usual price of a new 1909½ Two-speed HUMBER and CORONET Sidecar. This "combination," in turn, represents the best, cheapest, and speediest method of carrying two passengers anywhere at any time. A decent car costs £500, runs twenty miles to the gallon, and averages 20 m.p.h. The aforesaid "combination" runs 100 miles to the gallon, and averages 30 m.p.h. If you are contemplating purchasing a sidecar machine, we are convinced that this "combination" will render you the best service obtainable.

£54 17s. 6d. for £42 10s.

We have decided to offer a limited number of these HUMBERS, fitted with CORONET Sidecars, at £42 10s. the pair. Remember, one only supplied in each district as an advertisement. Full specification below.



"HUMBER"

1909½ HUMBERS

Brand new. These you can hardly tell from 1910 models being fitted with improved pattern silencers, spring forks larger pulleys, Roc licensed two-speed gear, H. B. control registered tank, high tension magnetos, Dunlop tyres, oil pump operated by foot, stand and carrier, toolbag with all tools fitted to handle-bar. Fully guaranteed.

£42 10s., complete with sidecar.

1909½ Single Speed Humbers.

We have a few of these beautiful models, brand new, fitted with magneto ignition, Druid spring forks, handle-bar control. Usual price £45.

Our price **£34 10s.**

NEW 1909 ARNOS.

We have a few Brand New 3½ h.p. Models, fitted with magnetos, h.-b. control, complete with tools, etc.

List price, £45. Our price, **£32 10s.** Or exchange. Cash offers wanted.

Other Sidecar Machines.

h.p. STEVENS Tricycle, two wheels in front..	£11 10
½ h.p. BROWN, twin, 1908, magneto, free engine	£25 1
h.p. Twin REX, four speeds, spring forks	£16 10
h.p. Twin REX, 1908, magneto, spring forks..	£24 10
½ h.p. HUMBER, 1909, two speeds, soiled only	£32 10
½ h.p. BAT, magneto, two speeds, spring frame..	£24 10

Beautiful Solo Mounts.

½ h.p. TRIUMPH, magneto, etc., 1909	£35 0
½ h.p. TRIUMPH, 1908, Mabon free engine	£30 0
½ h.p. TRIUMPH, 1907, in splendid condition ..	£25 0
h.p. DOUGLAS, 1909, studded tyres, like new	£32 10
½ h.p. REX, 1909, tourist, soiled only	£32 10
½ h.p. REX, colonial model, magneto ignition ..	£12 12
½ h.p. QUADRANT, 1909, Roc two-speed gear..	£32 10
½ h.p. QUADRANT, 1908, mag., beautiful order	£25 0
½ h.p. MINERVA, mag., enamelled French grey	£18 10
½ h.p. MINERVA, magneto, splendid condition..	£18 10
½ h.p. N.S.U., magneto, 2¼in. tyres, low built ..	£22 10
Four-cylinder F.N., magneto, spring forks	£17 10
h.p. N.S.U., twin, 1908, magneto, two speeds..	£27 10
½ h.p. SPARK, vertical engine, magneto	£8 15
h.p. Twin REX, with Forecar	£18 10
½ h.p. MINERVA, spray, good running order ..	£3 16

We have 200 Machines in stock.

We cannot put all these in our advertisements, therefore send for list, post free. CASH BUYERS we specially cater for, and we are able to allow big discounts. TO THE TRADE: We have a few good machines to clear at **£5** each.

THIS WEEK'S SPICY BARGAIN.

3 h.p. NOBLE, vertical engine, M.O.V., complete with coil, belt, and accumulator, number-plates, etc., in good running order.

£5 5s. £5 5s. £5 5s.

We will reserve machine upon receipt of **£1** deposit, and accept balance 5/- weekly.

£1,000 —. Wanted, Magneto Motor Cycles Good prices given. Waiting.—

BOOTH'S MOTORIES,
CHARLES STREET, off Square Road,
Phone 1062. HALIFAX. 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.
SECTION II.

York and Lancashire.

1908 Triumph, perfect condition, little used, ready for road, compression good: £32.—Hitchen's.

1909 Triumph, free from scratches, condition as new, these are beauties; £39.—Hitchen's.

1910 Triumphs, quick despatch, no waiting, original crates; £45; free engine, £52.—Hitchen's.

1910 3½h.p. Twin Premier, absolutely new, show model; listed £52 10s., £45 will buy.—Hitchen's.

PROMPT Spot Cash offers, also exchanges entertained for above.—Write at once, Hitchen's, Lancashire Motor Exchange, Euston Rd., Morecambe.

SOUTHPORT.—Second-hand motor cycles from £5; machines bought or sold on commission.

SOUTHPORT.—Dunlops, from 19s. 8d.; Warwicks, from 19s. 8d.; 1910 Amacs, and B. and B.

SOUTHPORT Motor Supply and Exchange, Hogton St., Southport.

1908 N.S.U., 3½h.p., 24in. wheels, excellent condition; best offer.—60, Selwyn St., Leigh, Lancs.

TRIUMPH, 1908, exceptionally good condition; 30 guineas.—32, Northfield Rd., Crookes, Sheffield.

1909 Special 3½h.p. Norton, drip feed, spares; £30 cash only; no dealers.—3, Fulmer Rd., Sheffield.

CROSS for Triumphs from stock; no waiting; £48 15s.; Palmer cords 10s. extra.—Cross, Triumph agent, Rotherham.

1910 N.S.U., 3½h.p., Model de Luxe, in stock.—Agents Huddersfield district, Moldgreen Engineering Works, Huddersfield.

DOUGLAS, 1909, perfect, only run 1,000 miles, all tools, spares; £28; trial; ordered 1910.—Rodgers, Broom Lodge, Rotherham.

3½h.p. M.M.C., good condition, new belt, and tank; £7 10s.; wanted, Minerva contact breaker.—Povey 175, Ribbleton Lane, Preston.

LATE 1909 Premier, as new, not ridden 200 miles; 29 guineas; any trial. 3.6h.p. lightweight Rex, £14, or exchange.—Aldon, Darley.

3½h.p. 1909 Brown, magneto, Druids, handle-bar control, £29; twin Minerva, Bosch, spring forks, £24. —Cross, agent, Rotherham.

MANCHESTER Motorists can obtain Ariel, Bradbury, Douglas, Norton, P.M.C. two-stroke from official agent, Gourlay, Fallowfield.

TRIUMPHS, immediate delivery, come and see me before purchasing your 1910 mount, any make supplied; second-hand Triumphs taken in part payment. —Triumph Agent, 53, Trafford Rd., Salford.

1909 Triumph, not ridden 200 miles, new last August Polkey lamp and generator, Trinote horn; £35, no offers.—Wilson, 19, Wellington St., Bradford, Manchester.

TO be Sold, Motor Cycle.—Triumph, 1909, Mahon clutch, in splendid condition, unscratched, not been ridden 1,000 miles; only £38.—19, Park Lane, Liverpool.

4h.p. J.A.P.-Anglian, 85 by 85, two-speed, chain drive, cone clutch, J.A.P. carburetter, magneto, low frame, Druid forks, footboards; £25.—Potter, 21, Leicester Grove, Leeds.

3½h.p. Triumph, 1909, new June, Lucas lamp, Cowey indicator spare belt and case, toolbag, and tools, as supplied, splendid condition; £37.—Owner, Williams Bros., Lytham.

MOTOSACOCHE, 1¼h.p., special machine, newly enamelled grey and overhauled by Motosacoche, Ltd. Very low frame, perfect condition, and equal new, accumulator model; 16 guineas; genuine bargain.—Topp, Carlisle St., Goole.

MONEY Wanted.—3½h.p. Fafuir, Chater-Lea, No. 6, adjustable pulley, footboards, French grey, very fast, guaranteed complete with pump, bag, etc.; accept £10, worth 15 guineas; any trial.—Short, Spread Eagle Yard, Chesterfield.

3½h.p. Ariel, 1910 machine, free engine, variable gears, not run 100 miles, charging-lighting set, gas engine, dynamo, switchboard, £20; six-cell charging battery, 50s.; new motor cycle, £18; Polyphon, 1d. slot, £3; motor cycle, £16; two double breechloading guns, £7 each; 14-16h.p. car wanted.—Hill, Chapmangate, Pocklington.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

£6.—2h.p. genuine Minerva, first-class order guaranteed.—63, Mill St., Macclesfield.

N.S.U., 4h.p., model de luxe, 1909 specification, not ridden 500 miles, guaranteed; £30.—Below.

PREMIER, 1909, brand new; any trial; guaranteed perfect condition; offers.—Below.

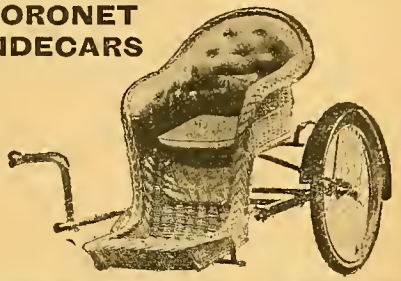
TRIUMPH, 1908, just enamelled and plated, new non-skid tyres, and belt, guaranteed; £32.—Below.

3h.p. F.N., accumulator, thoroughly overhauled, newly enamelled and plated, new Palmer tyres, belt, h.b. control, B. and B. carburetter, perfect condition; £15.—Attwood, Stone, Staffs.

Satisfying Sidecars.

We are receiving testimonials daily from customers all over the country who are highly delighted with Coronet Sidecars. Why pay fabulous prices for inferior goods?

£4 17s. 6d.
CORONET SIDECARS



Before buying a Sidecar, send for illustrated circular explaining the advantages of "CORONET" Sidecars over other makes. Delivery from stock to suit Minervas, Rexes, N.S.U.'s, Triumphs, and any other make. Attached in three minutes.

Price £4 17s. 6d. Discount to trade.

CORONET ADJUSTABLE PULLEY.

12/6

The best variable speed pulley on the market. Loose flange securely held in any position by a simple yet ingenious contrivance. Gear can be altered without the aid of spanners, lock ring easily operated by hand. Buy a "Coronet" pulley and gear your machine suitable for hill-climbing.

Standard makes, such as Rexes, Triumphs, Minervas, supplied without the necessity of sending old pulley for pattern. **Discount to trade.**

"GRIPSKIN" BELTING.

Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

¾in., **10d.**; ⅞in., **11d.**; 1in., **1/1**; 1¼in., **1/2.**

Special terms to the trade.

TYRES. TYRES. TYRES.
SPECIAL CLEARANCE.

Clincher Covers: 26in. or 28 × 2in., 2¼in., 2½in., **16/6.**
Dunlop Covers: 26 × 2in., **15/6**; 26 × 2¼in., **17/6**; 28 × 2¼in. or 2½in., **15/6.**
28 × 2in. Dunlop Covers: Beaded, **14/6**; Wired, **10/6.**
24 × 2¼in. Clipper-Reflex, heavy treads, **12/6**; ditto tubes, **4/-**

Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from **59/6** Your old coil and acc. taken in exchange.

CARBURETTERS.
BROWN AND BARLOW. AMAC.

Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters.
OLD CARBURETTERS BOUGHT.

MISCELLANEOUS.

De Dion Car Frame, wheels, differential	£3 10s.
New Water-cooled Cylinder M.O.V., 81 mm. bore	19/6
Six good Pl. in Coils ..... each	3/3
Dozen good Trembler Coils ..... each	7/6
Mudguards and Stays 3in., 2/11, 4in.,	3/6
Silent Silencers for engines to 5 h.p.	3/3
Long Handle-bars, well plated	5/6 and 6/6
500 Fuller Midget Trembler Coils	17/6
200 Fuller Plain Coils (your old coil taken in exchange)	10/6
250 Mirror Lens Lamps, with generators	14/9
50 Pairs New X'lall Spring Forks, latest	16/-
Longuemare, Minerva, F.N. carburetters .... each	5/6
Osborne Four-speed Gear, fit Rex	35/-
Albion Free Engine Clutch, fit Rex	29/-
New Powell Hub two-speed Gear, cost £11	£5
Good Forecarriage, complete, with tyres.....	£2 19s.
Light Car Frame, with springs and wheels	£2 10s.
Norman Two-speed Gear, nearly new	£2 5s.
New Twin Antoine Cylinder.....	20/-
New Amac Carburetter, handle-bar control	17/6
Second-hand pair XL'All or Matchless Spring Forks	9/6
De Dion Two-speed Gear Box, nearly new	£2 5s.
Low tension Magneto suit car	27/6
New Pistons, 81 mm. diam.....	3/9

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), HALIFAX
Telephone 1062.

MAUDES' MOTOR MART

HALIFAX AND LONDON

LONDON STOCK.

V.S. 5 h.p., magneto, Truffault forks, B. and B. handle-bar control, Kempshall and Continental new tyres £28
REX 3½ h.p., 1909 model, Bosch magneto, spring forks, good tyres £26
REX 3½ h.p., 1908 model, two speeds, Bosch magneto. A beauty £24
MINERVA 3½ h.p., 1909 model, handle-bar control, spring forks, magneto £26
MINERVA 3½ h.p., magneto, spring forks. Good running order £20
HUMBER 3½ h.p., 1909 model, single speed. Grey finish £23
N.S.U. 4 h.p., twin-cylinder, 24in. wheels, Mabon free engine, magneto, 1908 model £25
PEUGEOT 3½ h.p., Bosch magneto, Truffault spring forks, 26in. wheels, tyres as new. Very fast.... £21
TRIUMPH 3½ h.p., brand new, 1909 model, spring forks, magneto £41
BROWN 2¾ h.p., magneto, low saddle position, good tyres £16
N.S.U. 3½ h.p. model, magneto, low, long bars. Clear at £16
SINGER 3 h.p., vertical engine, magneto; cost over 50 gns.; accept for cash £14
CLYDE 2¾ h.p., vertical engine, magneto, good tyres £14
KELECOM 4 h.p., Phœnix two speeds, very good tyres, spring forks and seat £16
ANTOINE 4 h.p., vertical, M.O.V., very low and long, free engine, 26in. wheels, good tyres. A bargain £15
WHITE AND POPPE 3½ h.p., vertical. A bonny mount. Low built £14
ZENITH 3 h.p. Bicar, sprung both wheels, two speeds, very low £20
MINERVA 3½ h.p., 26in. wheels, low built, free engine. Good sound order £16

50/- down secures :

2¾ h.p. BRADBURY. Fine goer £9
2¾ h.p. MINERVA. Good faithful slave £7
2¾ h.p. MINERVA, M.O.V. £11
2¾ h.p. MINERVA, A.O.I.V. £9
3½ h.p. W. and P., Mabon clutch £14

All in good running order.

Balance 5/- weekly.

N.S.U. MOTOR CYCLES. N.S.U.

We have still a few N.S.U.'s to clear at exceptionally low prices, as below—

	Cash.	Deferred Payments.	List Prices.
3 h.p.	£25	—	£39
3½ h.p.	£31	£33	£42
5½ h.p.	£37	£39	£52

All brand new and perfect, and fitted with Magneto ignition.

Fullest particulars upon request.

Send for our lists of **Accessories and of Second-hand Motor Cycles.** We can almost guarantee to save you money.

TRICARS AND CARS.

PRUNEL Car, 20 h.p., side entrance, four cylinder, four speeds. Bang up to date. Clear at £330.
PHŒNIX Car, 8 h.p., two cylinder two speeds, two-seater, good tyres. £42.
REXETTE Tricar, 5½ h.p., two speeds open frame, water cooled, very good condition. £32.
QUADRANT Tricar, 5½ h.p., two speeds, open frame, air cooled. £15
HUBBARD Tricar, 5½ h.p., water cooled, two speeds, Chater-Lea gear box, perfectly sound. £26.

Every machine guaranteed in sound running order before delivery.

Maudes' Motor Mart,

136, Great Portland Street,

LONDON, W.

Telegrams: "Abdicate, London."
Telephone: 552 Mayfair.

Also at Powell Street, Halifax.

MOTOR BICYCLES FOR SALE.

1910 Humber, two-speed, 3½h.p., splendid condition, not done 300 miles; cost £56, sell £42. Also

3h.p. Quadrant Motor Cycle, surface, tyres good, also condition; sell £10, or would consider exchange for 5-seater car of good make.—H. T. Hughes, Cambrian Cycle Depot, Trawsfynydd.

TRIUMPH-MINERVA. 2½h.p., good going order; £8 10s., or best offer.—Newport, Tattenhall, Chester.

CHOICE of two 4-cyl. F.N.'s, 4 and 6h.p.; £22 and £28.—George Collier, Repton, near Burton-on-Trent.

REX, 3½h.p., racing model, enamelled French grey, as new, not scratched, low built, very fast; £30.—Moss, Wem.

1908 Triumph, in perfect order, only ridden few hundred miles, with spares; £31.—Finlow, Elton, Swadbach.

3½h.p. Triumph, 1908, excellent condition, with lamp, horn, two bags, and spares; £32.—Wakefield, Winmington, Northwich.

3½h.p. Brown, magneto, done about 200 miles, accessories, spring forks; £34 for quick sale.—68, Wellington Rd., Stockport.

3h.p. Minerva, Chater-Lea, new Palmers, first-class condition, accessories; £10, near offer.—Lewis, 23, Arden Rd., Handsworth.

3½h.p. 1904 Bradbury, in good working order, covers practically new; £7.—Tompson, Vicarage, Esclusham Vicarage, Wrexham.

MINERVA, 3½h.p., a grand machine, equal to anything on the road; £15, great bargain; several others.—Bunting, Wealdstone.

1909 Wolf Lightweight, Druid spring forks, ridden about 500 miles, all accessories; £15 10s.—566, Bloxwich Rd. Bloxwich, Walsall.

MOTO-REVES and Triumphs, 1909 models, at cut prices; latest 1910, ready for immediate despatch; best prices allowed for old mounts.—Bunting, Wealdstone.

ARIEL, 3h.p., January, 1909, h.b. control, 26in. wheels, spring forks, very fast, reliable, all accessories; £18; bought 1910 Premier; photo.—Doody, Castle, Foregate, Shrewsbury.

TRIUMPH, 3h.p., 1906, magneto, spring forks, h.b. control, adjustable pulley, new Watawata, good tyres, lamp, horn, spares, tuned ready for season; £22.—Garstang, 47, St. George's Av., Higher Tranmere, Birkenhead.

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

1910 Triumph Motor Cycles in stock.—Stamford Garage, Stamford.

3½h.p. Magneto Rex, late 1908, almost new; £22.—Holmes, Spencer St., Leamington.

1909 3½h.p. Rex, brand new; sell best offer; entertain exchange.—22, Victoria Terrace, Leamington.

1909 Standard Triumph, almost new, guaranteed perfect; £35.—Lance, Chester Rd., Wellingborough.

LOW Built 3h.p. Stevens, splendid goer, in excellent condition; £15.—Arthur Allen, Ashby-de-la-Zouch.

1909 4-cyl. 5-6h.p. F.N., not run 500 miles, and equal to new; £38.—1, Stratford Terrace, Nottingham.

3½h.p. Aster, perfect, 26 by 2¼ tyres, spring forks, etc.; £8 10s., or offer.—F. Roberts, Rother St., Stratford-on-Avon.

F.N., 4½h.p., splendid condition and going order, spares, etc., very fast; £20 cash.—Walker, 153, Monk Rd., Lincoln.

TRIUMPH, 1909, all accessories, scarcely soiled; £35, or nearest offer accepted.—Trelawney, King Edward Rd., Coventry.

3½h.p. Minerva, late 1908, magneto, handle-bar control, perfect condition; sprung frame forecar, £3 10s.—Wykes, Grantham.

3h.p. Lincoln Elk, in perfect condition, low, fast, and reliable; genuine bargain, £12; approval willingly.—B. Morris, Bourne.

3½h.p. Rex, 26in. wheels, in splendid running order and condition; bargain, £9.—Crump, 10, Dalton Sq., Butts, Coventry.

3¾h.p. Rex and trailer, steel studded back, non-skid front, climb anything; sacrifice £16 16s.—Beech, Post Office, Shirecoaks, Notts.

1910 Humber and Ariel Motors, latest models; immediate delivery; liberal allowances; exchanges.—Evans, agent, Sparkhill, Birmingham.

DOUGLAS, 1910 models, in stock, complete with lamp horn, and accessories; 38 guineas.—Norton and Sons, ironmongers, Smithford St., Coventry.

1909 Rex, 3½h.p., as new, special finish, tank in red and aluminium, specially good; £30, or 1908 Triumph and £5.—3, Tichborne St., Leicester.

4-Cyl. F.N., 1909, equal to new, h.b. control, spring seat-pillar, mirror, watch, lamp, horn, tools, and spares; £28; buying car.—164, Coventry Rd., Hay Mills.

ROC, 4h.p., magneto, Amac carburetter, h.b.c., adjustable pulley, free engine, handle starting; £24, cheap.—Stevenson, Edgbaston House, Broad St., Birmingham.

MAUDES' MOTOR MART

HALIFAX AND LONDON

IF YOU WANT A 1910 MODEL CONSULT US

We guarantee to save you money for Cash, Deferred Payments, or Exchange.

ANY MAKE

N.S.U.'s All brand new. N.S.U.'s

Six 3 h.p. models ..... Clear at £2
Two 3½ h.p. models ..... „ £3
Two 5½ h.p. models ..... „ £3

Exchanges or Deferred Payments. Cash offers considered.

SECOND-HANDS AT HALIFAX.

MINERVA 4½ h.p., 26in. wheels, good tyres, perfect order £2
N.S.U. 3½ h.p., 2½in. tyres, spring forks, variable pulley £1
TRIUMPH 3 h.p., spring forks, Amac carb., handle-bar control, very fine order £1
QUADRANT 3½ h.p., 26in. wheels, spring forks, very good puller £1
HAMILTON 4 h.p., Amac carb., handle-bar control, 26in. wheels, A1 condition £1
N.S.U. 3½ h.p., magneto, handle-bar control, Roc two speeds, very low £2
MOTO-REVE 2 h.p. Lightweight, twin, magneto, spring forks, very good tyres £2
PEUGEOT 4 h.p., twin, low position £15 1
ARIEL 3½ h.p., B. and B. carb., low built £14 1
FAIRY 2 h.p., low, ideal lightweight £12 1
MINERVA 3½ h.p., good tyres, low built £12 1
CLARENDON 3 h.p., M.O.V., accumulator ignition £14 1
EXCELSIOR 3 h.p., grey finish, good puller £10 1
N.S.U. 1¾ h.p. Lightweight, magneto £16 1
TRIUMPH 3 h.p., magneto, low built £19 1
MINERVA 3½ h.p., Longuemare carb., good tyres £16 1
MINERVA 2¾ h.p., B. and B. carb., M.O.V. £14 1

Exchanges, Deferred Payments, or close Cash offers.

50/- down secures :

MADISON 1¾ h.p., spray £6
QUADRANT 2 h.p., low, good tyres £8
BARTER 3 h.p., spray, long bars £9
DURKOPP 2½ h.p., good tyres £10 1
BROWN 2 h.p., good little mount £10 1
HUMBER 2¾ h.p., chain drive £10 1
EXCELSIOR 2¾ h.p., long bars £10 1

Balance 5/- weekly.

Complete lists post free on application.

We cannot be beaten for prices of Motor Cycle Accessories. Send for lists.

MAUDES' MOTOR MART,

Powell Street
(behind Victoria Hall),
HALIFAX.

Telephone 433.
Telegrams: "Petrol, Halifax."

ALSO AT
136, Great Portland Street
LONDON, W.

MOTOR BICYCLES FOR SALE.

3½h.p. Rex, magneto, in first-class condition, very little used, with accessories, including headlight and generator, spare belt, etc.; £19.—94, Alcombe Rd., Northampton.

DOUGLAS, 1910, Brooks B105/4 padded saddle, spare tube, lamp, and separate generator, complete with spares and all accessories; £36.—Waterlow, The Gables, St. Nicholas St., Coventry.

MOTO-REVE, late 1908, magneto, spring forks, several spares, capital running order, good condition, little used; £20, or near offer secures bargain.—Barker, 16, Victoria St., Warwick.

NORTHAMPTON.—6h.p. Twin Rex, £14; another, £12; 3½h.p. Rex, magneto, £18 10s.; 3h.p. Clarendon, magneto, £14; 3h.p. Advance, £5.—St. Edmund Garage, sole district agents for Matchless motors.

REX de Luxe Twin, B.B., h.b. control, Palmer tyres, Brooks saddle, Whittle belt, toolbag, tools, and spare valves, general condition as new; £30; bought 1910 Rex twin.—T. Band, Estate Agent, Little Park St., Coventry.

COMFORT, Cleanliness, Reliability are proven merits embodied in C.C.R. motor cycles, made by clever, cute riders of long experience; exchanges; trials arranged.—C.C.R. Motor Works, Ford St., St. Ann's Well Rd., Nottingham.

LARGE Stock of second-hand motor cycles and tricars, all makes, cheap to clear; approval.—C.C.R. Motor Works, address above.

3½h.p. Bradbury, 1909, with 1910 improvements, including flywheels and Druid forks, taken in part payment for a 1910 model, complete with horn, lamp, all spares, etc.; price £30.—Apply, Clayton, 125, New St., Birmingham.

1909 3½h.p. Humber, two speeds, free engine, candle starting, good condition throughout, engine overhauled by makers in August, Dunlop tyres, Autoclipse lamp; £30, or nearest (Coventry district).—Box No. 4,143, *The Motor Cycle* Offices, Coventry.

SECTION V

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

2¾h.p. Clyde, magneto, new belt and lamp; bargain, £10.

5h.p. Speed King Rex, ridden in Tourist Trophy race, Isle of Man; too fast for owner; what offers?—J. Popplewell and Son, Ipswich.

AUGUST, 1909.—2¼h.p. N.S.U. twin lightweight, ridden 1,200 miles, as new, R.O.M. back tyre, fast, silent; accept £27 10s.—H. Dawson, Emmanuel College, Cambridge.

TRIUMPH, 1907, in absolutely new condition all through, handle-bar control, Palmer cord, horn, all tools, very powerful engine, very good; £25.—Wallis, 29, Hills Rd., Cambridge.

WHAT Make Motor Bicycle do you fancy? We can supply and give early deliveries. We have actually in stock new Triumphs, Premiers, and Bradburys, cash or instalments.—Parker and Son, St. Ives, Hunts.

GENTLEMAN bought car, must sell his 1909 Triumph, practically brand new, been about 200 miles, studded tyres, horn, tools, perfect machine; nearest £37; can be seen any time at Cox's Garage, St. Andrews Hill, Cambridge.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

F.N., 4 cyls., 5-6h.p., new last April, good condition; £36.—Raymond Webb, Evesham.

1908 Triumph, just overhauled, warranted good order; £30.—Davies, Western Rd., Hagley, Stourbridge.

PREMIER, 1909, 3½h.p., lamp, horn, tools, etc., as new, guaranteed perfect.—Wall, 35, Beauchamp St., Cardiff.

3¼h.p. Rex, perfect order; £8 10s. cash; included engine part payment.—Brooks, 12, New James St., Blaenavon.

5h.p. Rex, first-class condition, Stanley-Dermatine belt, Shamrock-Gloria rubber non-skid tyre, lamp, and spares; £20, or nearest offer, a bargain.—Nelson, Glynneath, Glam.

TRIUMPH, 3h.p., magneto, good condition, tyres nearly new, spare pulley, belt, piston rings, valves, tappets; £20 cash, no offers; photo on application.—Tilley's Library, Ledbury.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

1909 F.N., 5-6h.p., many spares, almost new; £35.—Box L1,461, *The Motor Cycle* Offices, 20, Tudor St., E.C.

EYLES and Eyles, opposite Town Hall, Oxford.—1910 Premier motor cycles, twins and singles, in stock; £47 10s.

TRIUMPHS, 1910 models, immediate delivery; sole agent for Salisbury district.—E. J. Lougman, Fisherton, Salisbury.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

EASY PAYMENTS.

5/- weekly and reasonable deposit secures any of these machines. All tested and ready for the road:

2¾ h.p. Bradbury	£10 0	2¾ h.p. Kerry	£9 10
3 h.p. Clyde	£15 0	2¼ h.p. Ariel	£9 13
3 h.p. Ariel	£10 0	2¾ h.p. Werner	£8 10
3 h.p. Humber	£10 0	3½ h.p. Werner	£13 10
3½ h.p. Rex	£10 10	2¾ h.p. M.M.C.	£9 10
2½ h.p. Lloyd's	£7 10	2 h.p. Humber	£8 10
3½ h.p. Rover	£14 0	3 h.p. Bradbury	£10 10
2¼ h.p. Minerva	£9 10	3½ h.p. Excelsior	£9 10

SPECIAL CASH BARGAINS.

3 h.p. HUMBER, spray, free engine	£10 10
3 h.p. BRADBURY, long and low	£10 0
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. STEVENS, h.b. control, band brake	£13 10
3 h.p. CLYDE, high tension magneto, sprieg forks	£14 10
2¾ h.p. KERRY, light and low, spray	£9 10
3¼ h.p. REX, 22 frame, re-enamelled, trembler	£7 10
3 h.p. BEESTON-HUMBER, spray	£9 10
3½ h.p. WERNER, used with passenger	£13 10
2¾ h.p. Light ARIEL, low build, 26in. wheels	£8 15
2 h.p. F.N. SAROLEA, untested, spray	£4 5
3½ h.p. EXCELSIOR, h.b. control	£6 0
2½ h.p. MINERVA, goes well, reliable	£4 19
2 h.p. QUADRANT, long bars, low saddle	£4 19

Monster list on application. Cash offers considered.

Three 5½ h.p. **TWIN REXES**, spring forks, long bars, low frames, aluminium finish, blue lines, 26in. wheels..... **£16 10**
Good sidecar machines. Exchanges or easy payments.

LIGHTWEIGHTS.

1908 1¾ h.p. MOTOSACOCHE, belt drive, goes well	£19 19
1908 2 h.p. MOTO-REVE, magneto, V belt	£22 10
1908 2¾ h.p. REX Featherweight, magneto	£17 10
2 h.p. MINERVA, spray, good climber	£8 0
CLEMENT GARRARD, twin, spring forks	£9 15

SIDECAR MACHINES.

1909 Two-speed Twin REX DE LUXE	£39 0
1909 5 h.p. TWIN REX, nearly new	£32 10
1908 Twin Tourist REX, magneto	£28 10
1908 REX DE LUXE, mag., extra good	£29 10
1907 Twin magneto REX, spring forks	£20 0
6 h.p. N.S.U., magneto, spring forks	£24 10
5 h.p. Twin SAROLEA, excellent order	£14 14
6 h.p. Twin ANTOINE, extra good, R.O.M.	£18 10
4½ h.p. Twin MINERVA, very good order	£16 10

"POPULARS."

1910 3½ h.p. Magneto TRIUMPH, plate clutch	£55 0
1909 TRIUMPH, magneto ignition	£34 0
3½ h.p. brand new TRIUMPH Magneto	£43 10
1909 3½ h.p. Magneto REX, nearly new	£32 10
1909½ 3½ h.p. REX Speed King, as new	£35 0
1909 3½ h.p. two-speed HUMBER	£32 10
1908 3½ h.p. Magneto REX, special machine	£24 10
1908 4½ h.p. 2-speed REX DE LUXE	£29 10
3½ h.p. Magneto QUADRANT, spring forks	£24 0
4 h.p. ANTOINE, high tension magneto	£18 18
3 h.p. Magneto SIMMS, 2¼in. Palmers	£16 10
3 h.p. SINGER, V belt, h.t. magneto	£18 10
1907 3½ h.p. QUADRANT, spring forks	£18 10

1909 REXES 1909
Brand New and fully guaranteed.

1909 3½ h.p. Tourist REX	£35
1909 3½ h.p. REX DE LUXE, two-speed	£45
1909 5 h.p. REX DE LUXE, two-speed	£48

1910 REXES From £42. **Liberal Exchanges.**
Deliveries from Stock of all Models.

1910 DE LUXE SIDECARS.

Special detachable fittings, no second adjustment required, 26 × 2½ tyre, art cane or best wicker body, **£5 17 6.** Illustrated pamphlet on application.

100 New large size LYCETT'S motor saddles	9/6
1910 Spring Forks, to fit all Rex machines only	39/6
Worth double. Liberal allowance for old forks. Illustrated Pamphlet on application.	
Brooks B100 Saddle	12/6
Dunlop and Clincher Tyres	17/-
Clipper-Reflex Tyres, specially good	17/6
Tubes with valves—all sizes	4/11
New Amac Carburetter.... 19/6. B. & B.	25/-
100 New Bags, fitted with tool roll and number plate.	
Osborne free engine clutch and starting handle, fit Rex,	21/-
Mabon free engine clutch, Bowden control, fit Rex,	39/-
100 New Lamps, Rushmore type, mirror lens, extra large generator,	14/9
Large 3-note Horns, extra loud,	7/9.
Art Cane Forecar, 26in. wheels, new tyres,	79/6.
Longuemare Carburetter, 3½ h.p. or twin,	5/-

MOTOR BICYCLES FOR SALE.

3h.p. N.S.U., splendid order, tools, etc.: £14 or near.—"Henley," Wokingham.

N.S.U., Model de Luxe, 4h.p., new August last; £23, or offer.—250, Wells Rd., Bristol.

TRIUMPHS, 1910, delivery from stock; second-hand Triumphs taken in part payment.—Laytons, Bicester.

3½h.p. Minerva, in perfect condition, accumulator ignition, lamp, good tyres, climb anything; bargain.—Halfpenny, Sunningdale.

1910 Wolf Lightweight, V. belt, handle-bar control, lamp, horn, generator, perfect condition throughout; £16.—Below.

1909 Triumph, P. and H. lamp and generator, horn, new Stanley belt, spare Shamrock-Gloria, excellent condition, fast machine; £34.—Below.

1910 Free Engine Triumph, Autoclipse lamp, Lucas generator, not been ridden 150 miles; owner having car; unscratched; cost £58, accept £50.—Below.

MORRIS for all makes of new and second-hand machines. Fair prices, fair dealing.—Below.

MORRIS, Holywell, Oxford. Specialist in new and second-hand Triumphs. Immediate delivery.

1908 3½h.p. Rex, in every day use by country doctor in district including Birdlip, excellent running order, Miller mudshield; 24 guineas, or nearest offer.—Dr. Scott, Painswick.

MOTO-REVE, late 1908, just overhauled, new R.O.M.'s, rims, and wide mudguards, lamp, and all accessories; £17 10s., or nearest offer.—Apply, Stevens Garage, Fleet, Hants.

BAT, spring frame, 6h.p. J.A.P., re-bored, new pistons by J.A.P., Amac h.b.c. and ignition, re-plated and enamelled, new 2½in. and 2¼in. Continentals, Watawata (mudguarded), lamp, horn, spares; photo; condition and running as new; cash offers.—Herbert Titt, Warminster.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

PULLMAN'S.—Triumph, 3½h.p., magneto, late 1908; £30.

PULLMAN'S.—Rex, 3½h.p., magneto, late 1909; £32.

PULLMAN'S.—F.N., 2¾h.p., magneto, spring forks, h.b.c.; £14.

PULLMAN'S. — Bradbury, 3½h.p., electric ignition; £12.

PULLMAN'S have many others; write for list.—Pullman Bros., London Rd., Norbury, London.

£10.—3h.p. De Dion, Chater, Brooks, Dermatine.—1 Townley Rd., Dulwich.

3½h.p. London, in running order; £5 15s.—Bennett, 32 The Limes, Ponders End.

3½h.p. Rex, B. and B., handle-bar control, good order; £8.—Jermy, Frimley Green.

Y.M.C.E.—5h.p. Rex de luxe, two-speed, magneto, very low, guaranteed perfect; £28.

Y.M.C.E.—Immediate delivery of 1910 Rex models: £42 to £75.

YATES' Motor Cycle Exchange, Cavendish Place, Eastbourne.— Exchanges, easy terms, or cash.

1909 3½h.p. Minerva, run 500 miles; best offer.—376, Barking Rd., Plaistow, E.

MOTO-REVE, 1909, grey finish, brand new; £26.—8, Oppidans Mews, Chalk Farm.

F.N., 2¾h.p. in running order, good condition; £9 10s.—37, Knight's Hill, West Norwood.

2¾h.p. M.M.C., low Chater-Lea frame; £11, or near offer.—37, East St., Bromley, Kent.

£7.—3h.p. M.M.C., smart, good condition; trial.—Leon, 12, Studland St., Hammersmith, W.

TRIUMPH, 1910, delivery now from stock; £48 15s.—Rusticana, 523, High Rd., Chiswick.

£43, lowest, for new late 1909 3½h.p. Triumph motor cycle.—Paull, Barrack St., Colchester.

1910 Douglas, twice used, £33; 1909 Triumph, new, £40.—84, Rodenhurst Rd., Clapham.

3h.p. Fafnir, accumulator, Continental tyres; bargain, £11 10s.—73, Church St., Camberwell.

GENN'S, Wimbledon.—3½h.p. Minerva spring forks, R.O.M., Continental, as new; £19 10s.

GENN'S, Wimbledon.—3½h.p. Ariel, spring forks, Dunlops, carrier, etc., perfect order; £12.

GENN'S, Wimbledon.—3½h.p. Minerva, Dunlops, Brown and Barlow, Whittle belt, speudid climber; £10 10s.

GENN'S, Wimbledon.—2h.p. Minerva, Chater Lea fittings, Palmers, good order; bargain, £8.

GENN'S, Wimbledon.—2-cyl. Alcyon, Dunlops, spring forks, been re-bushed, fast; £15 10s.

GENN'S, Wimbledon.—2¾h.p. De Dion, machine new, second-hand engine; bargain, £20.

GENN'S, Wimbledon.—8h.p. Minerva, No. 6 Chater, 2½ Dunlops, Longuemare, practically new; £32 10s.

GENN'S, Wimbledon.—3h.p. Humber; see it go; £6.—Motor Works, Gap Rd.

MOTOR BICYCLES FOR SALE.

MINERVA Cycle, 1¾h.p.; £5; right for road.—Collins, 68a, Romney St., Westminster.

TRIUMPH, 2¾h.p. J.A.P., in good condition; £7 10s.—Hilder, Reginald Rd., Bexhill, Sussex.

TRIUMPH, 1909, in splendid condition; £35, or offer.—38, Romilly Rd., Finsbury Park.

TRIUMPH, 1909, perfect, new Kempshalls; any trial; £33 10s.—8, Oppidans Mews, Chalk Farm.

3¾h.p. Rex, £5 10s.; 1¾h.p. Minerva, £3 3s.; perfect order.—Acworth, 8, Crieff Rd., Wandsworth.

MINERVA, 2¾h.p., perfect running order, with accessories; £10.—Dr. Warren, Enfield Highway.

3½h.p. Triumph, 1908, perfect condition, Mahon clutch, £30.—Eagles and Co., High St., Acton.

BRADBURY, 1909, equal to new; £29; approval.—Eagles and Co., High St., Acton.

N.S.U., 1908, 3½h.p., magneto, spring forks, 1in. belt, two-speed gear, and free engine; £26; approval.—Eagles and Co., High St., Acton.

N.S.U., 3½h.p., magneto, adjustable pulley, 1in. belt; £18 10s.—Eagles and Co., High St., Acton.

2¾h.p. Minerva, low, £7 10s.; Chater forecarriage, 55s. —3.130, Quinness Buildings, Pages Walk, S.E.

3½h.p. Rex, magneto, spring forks, quite new; £14 10s.—124, Bishopsgate St. Without, London.

TRIUMPH, 1907, three accumulators, and spares, good order; £15; trial.—Miskin, Chart-Sutton, Maidstone.

3½h.p. Rover, new tubes and covers, in perfect order; seen any time; cheap, £11, or offer.—Hopkins, Ewell.

1905 Triumph, 3h.p., overhauled, perfect condition; £16 10s.—Full particulars, R., The Rectory, Chatham.

HAMPSTEAD.—1909 Triumph, condition like new, all accessories, studded tyres; bargain, £35.

HAMPSTEAD.—1909 Triumph, studded tyre, all accessories, splendid condition; bargain, £34.

HAMPSTEAD.—Triumph, 1909, splendid condition, studded tyres, all accessories; special bargain, £33.

HAMPSTEAD.—Triumph, 3½h.p., late 1907, new tyres, splendid condition, all accessories; £25.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting; easy payments taken, 5 per cent. extra.

HAMPSTEAD.—Douglas, 1910 model C., only run few miles, unscratched; splendid bargain, £33.

HAMPSTEAD.—Douglas Twin, late 1909, only shop-soiled condition, all accessories; £28.

HAMPSTEAD.—Douglas, 1909, twin, magneto and spring forks, splendid condition; £24 bargain.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; no extra for easy payments.

HAMPSTEAD.—Rex, 3½h.p., tourist, 1910, latest model, only run few miles; special bargain, £39 10s.

HAMPSTEAD.—Rex, 1908, 3½h.p., magneto and spring forks, very low, splendid condition; £17

HAMPSTEAD.—F.N., 4-cyl., brand new, latest model; £39 with latest improvements.

HAMPSTEAD.—F.N., 4h.p., late model, splendid condition, all accessories; £22, special bargain.

HAMPSTEAD.—F.N., 4½h.p., latest model handle-bar control, condition splendid, with accessories; £24.

HAMPSTEAD.—F.N., 5 to 6h.p., late 1909, 2¼ tyres, R.O.M., splendid condition; £29, cost £51.

HAMPSTEAD.—Ariel, 3½h.p., good condition, all accessories, new Palmer tyre; bargain, £10.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Lincoln Elk, latest, 1909, 3h.p., splendid condition, with all accessories; £18.

HAMPSTEAD.—Minerva, 3½h.p., late 1909, magneto and spring forks, handle-bar control; £26.

HAMPSTEAD.—Minerva, 3½h.p., just enamelled grey, splendid condition, handle-bar control; £11.

HAMPSTEAD.—Peugeot, 7-9h.p., late 1909, very low, condition like new; cost £60, take £28 10s.

HAMPSTEAD.—Fafnir, 3½h.p., M.O.V., very low, Chater-Lea frame, all accessories; £13.

HAMPSTEAD.—£5 upwards allowed, or cycles in part payment for new motor cycles, any make.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD.—Moto-Reve, latest 1909 model, only shop-soiled condition; special bargain, with all accessories, £26

HAMPSTEAD.—Moto-Reve, new condition, 1909 all accessories, spring fork and magneto, special bargain, £23.

HAMPSTEAD.—Moto-Reva, 1908, twin, magneto and spring forks, all accessories; £17.

HAMPSTEAD.—N.S.U., splendid model, M.O.V., good condition, with all accessories; £10, bargain.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Reves, Humber, etc.; exchanges or gradual payments, 5 per cent. extra.—Rey, 5, Heath St. Tel.: 2678 P.O., Hampstead.

CUT THIS OUT
and paste it in your hat.

SIDECAR MACHINES.

1908 Twin REX, magneto, very low	£25 0
1909 5 h.p. Twin REX, fine machine	£32 0
6 h.p. Twin REX, Roc 2 speeds	£22 0
1909½ Twin REX Racer, lovely goer	£35 0
1909½ 3½ h.p. REX Racer, soiled only	£32 10
1908 Twin REX, magneto, h.b. control	£26 0
6 h.p. Twin REX, spring forks, 26" wheels	£16 10

Any of the above fitted with one of our new Sidecars for £4 17s. 6d. extra.

SOLO MOUNTS.

3 h.p. VINDEC, Bosch magneto	£16 0
3 h.p. VINDEC, magneto, H.B. control	£18 0
3½ h.p. MINERVA, magneto, spring forks, lovely machine, perfect	£22 10
1910 3½ h.p. REX, slightly soiled. Offers wanted.	
1910 3½ h.p. PREMIER, twin-cylinder	50 Gns.
1909 3½ h.p. REX, R.O.M. tyres	£30 0
1908 3½ h.p. REX, almost like new	£22 0
1908 3½ h.p. GRITZNER, mag., free engine	£18 0
1908 REX Lightweight, fine condition	£17 0
1907 3½ h.p. REX, lovely goer, very smart	£15 15
3½ h.p. N.S.U. magneto ignition	£15 0
3½ h.p. REX, M.O.V. spray	£10 10
3½ h.p. 1906 REX, M.O.V., spring forks	£14 0
3½ h.p. REX, Bosch magneto, fine goer	£16 0

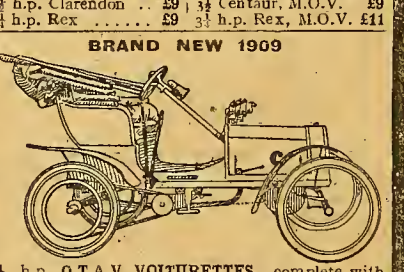
LIGHTWEIGHTS.

1908 N.S.U. Lightweight, Bosch magneto	£17 0
1909 MOTOSACOCHE, soiled only	£24 0
1908 REX Featherweight, magneto	£18 0
Twin-cylinder FAIRY, very smart	£14 0

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Clarendon .. £9 | 3½ Centaur, M.O.V. £9
3½ h.p. Rex ..... £9 | 3½ h.p. Rex, M.O.V. £11

BRAND NEW 1909



5½ h.p. O.T.A.V. VOITURETTES, complete with hood, lamps, tools, and spares, £60 each.
Magneto ignition, £5 extra.

FARRAR'S "HALIFAX" SIDECARS.

£4 17s. 6d., complete with best tyres. Guaranteed 12 months. An ideal winter attachment, quite rigid. Good, stylish, and comfortable. No side-slip. Beautifully sprung on double C spring. Approval anywhere. Send for descriptive circular. Don't buy until you have seen ours.

For a few days we will accept your old sidecar or trailer in part payment.

Very fine 5½ h.p. REXETTE TRICAR, spring frame, water-cooled, two speeds £24 0

MISCELLANEOUS BARGAINS.

5-6 h.p. Twin Antoine Engine	£4 0
	s. d.
Powerful Treadle Drill	35 0
Few Air-cooled Cylinders, each	12 6
Few various Water-cooled Cylinders, cheap	
Belt Rims, various sizes, each	1 6
Montgomery flexible sidecar	80 0
Fullers charging Battery	15 0
'XL-ALL spring forks, per pair	9 0
Clincher Rubber-studded Covers, 26 x 2¼	29 0
Few ditto Deadnought, cheap.	
26 x 2¼ Lomax Detachable Non-skids, new	15 0
28 x 2 or 2¼ Dunlop Wired Covers	11 6
Motor Cycle Bags, shop soiled, each	2 6
"Hella" Gas Lamps with separate generator	14 6
"Camel" V Belting, ⅜in. or 1in., per foot	1 3
Latest pattern Plated Handle-bars, drop ends	5 6
Three-note "Fanfare" Horns, very penetrating	7 6
Minerva, Longuemare, F.N., and N.S.U. Carburetters	5 0
Clincher Tubes, all sizes, with valves	4 11
1910 Brown and Barlow Carburetters, h.b. control	28 0
1909 Amac Carburetters, h.b. control	19 6
Forecar Attachment, 26in. wheels	80 0
Premier High-tension Magneto, new	59 6
Loop Frame for vertical engine	30 0

Big stock Quadrant Spare Parts.

Get our Price List. Remember we are the cheapest firm alive. 'Small profits and quick returns' is our motto. High-class machines wanted. Cash waiting.

Farrar's Motor Works,

Square Road, HALIFAX.
Telephone 919.

MOTOR BICYCLES FOR SALE.

BRADBURY, 1910 models; £46; delivery from stock.—Bright and Hayles, 73, Church St., Camberwell.

BRADBURY, 1910 models; cash, exchange, or easy payment arranged.—Bright and Hayles, 73, Church St., Camberwell.

5h.p. Twin Peugeot, accumulator, spring frame, B.B. carburetter; £25.—H.M., 143, Cornwall Rd., Notting Hill.

TRIUMPHS, 1910, with and without free engine, in stock, for immediate delivery.—H. E. Hall and Co., Tonbridge.

3½h.p. Rex, good tyres and condition, just been overhauled; bargain, £12, or near offer.—129, High St., Croydon.

2½h.p. Rex, good condition, low position, comfortable; £7 10s.; appointment.—Fricker, 241, High St., Brentford.

BARGAIN.—3½h.p. motor cycle and accessories, good going order; £6; apply after 7.—97, Malvern Rd., W. Kilburn.

3½h.p. Fafnir, Palmer cords, spring forks, Chater-Lea fittings, h.b. control; £14.—Apply, 32, Bingley Rd., Hornsey.

1910 F.N. Lightweight, 2¼h.p., all accessories, hardly soiled; cost £43 complete; sacrifice £33.—Tribe, Arona, Sunbury.

3½h.p. Rex, 1908, magneto; £16 10s.; seen by arrangement; good condition.—Hatton, 11, Speldhurst Rd., Chiswick.

2¾h.p. Noble, medium weight, vertical, M.O.V., lamp, stands, good condition; £9.—68, Ancona Rd., Plumstead.

5-6h.p. Chater-Sarolea, low, very fast, every accessory, guaranteed perfect; £20.—Gassmann, Enfield Highway.

TRIUMPH, 1909, excellent condition; £35 cash, or near offer for quick sale.—Harper, Athelstan, The Av., Wanstead.

2½h.p. Givandan, Eadie, good order; £7, or exchange anything useful. — Baugh, Green Street Green, Orpington, Kent.

3½h.p. Rex, in good condition, Whittle belt; £13, or near offer; wanted, higher power.—61, Hartfield Rd., Wimbledon.

2¾h.p. Minerva, spring forks, overhauled, re-enamelled; must sell; £12, nearest.—Dunk, 14, Princes St., Tunbridge Wells.

1909 Lincoln Elk, 3½h.p., magneto, all latest improvements, and spares; £25, or offer.—38, Romilly Rd., Finsbury Park.

TRIUMPH, 1909, free engine, very little used; closest offer to 38 guineas; as new.—Thompson, 31, Lordship Lane, Wood Green.

REX, 3½h.p., low frame, Dunlop, handle-bar control, powerful adjustable pulley, will take sidecar.—Trow, Balaam St., Plaistow.

3½h.p. Rex, accumulator, everything including tyres in splendid condition; £12.—Standing at 541, Fulham Rd., London.

LIGHTWEIGHT F.N., 1908, magneto, spring forks, as new; owner bought car.—Heather, The Oaks, Sanderstead. £16 16s.

3h.p. Ariel, M.O.V., vertical, B. and B., top of frame 28in. from ground, almost new; £14.—George, 47, Montague Rd., Dalston.

3½h.p. N.S.U., spring forks, long handles, low, spares, perfect condition; £18.—G. Schwearer, 20, Tresco Rd., Peckham Rye, S.E.

1907 3½h.p. Minerva, only wants seeing, perfect condition; ride 25 miles to purchaser; £15 15s.—88, George St., Croydon.

ZENITH-GRADUA, 3½h.p., 1909, splendid condition, tyres unpunctured; £35.—V. A. Gunther, Hampton Wick, Middlesex.

N.S.U., 3½h.p., magneto, spring fork, new belt, tyres, lamp, etc., very low and fast, nearly new.—W.Z., 61, Plimsall Rd., Finsbury Park.

1909 3½h.p. Triumph, perfect condition, looks like new.—Call 278, South Lambeth Rd. 'Phone before 6, Brixton 826. £35.

3h.p. Clarendon, perfect order, low, new Continentals, thoroughly reliable; seen running any time; £10.—17, Hampstead Rd., Brighton.

F.N. 1¾h.p. Lightweight, late 1908, footrests, magneto, spring forks, handle-bar control.—Evans, 2, Radcliffe Rd., Winchmore Hill, N.

ELEPHANT Motor Mart.—2¾h.p. Kelecom, H.T. magneto, £12; 3½h.p. Ascot, £6 10s.; 2¾h.p. Werner, £5 10s.; 2h.p. Minerva, £4.

ELEPHANT.—5-6h.p. twin Bercley, £13 10s.; 5-6h.p. twin Rex, cantilever seat, £15 15s.; new and second-hand accessories and fittings bought, sold, or exchanged.—Elephant Rd., London.

1909 5h.p. Special Twin Rex, enamelled grey, condition as new; only wants seeing; bargain, with spares, £29 10s.—16, Haverstock Hill.

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

1h.p. Kelecom, handsome machine, in excellent condition, horn, lamp, and tools; £15.—Noakes, a., Cairo, East Molesey, Surrey.

1h.p. Twin N.S.U., magneto, spring forks, free engine, fine condition; £20.—33, Killyon Rd., andsworth Rd. Station, Clapham.

ADY'S Motosacoche, perfect, not ridden 50 miles, magneto, spares, tools, lamp; reason selling, buying icar.—35, Woodland Rd., Upper Norwood.

OC, 4h.p., two-speed, free engine, handle starting, magneto, accessories, ideal sidecar machine; £22 s.—Williams, 2a, Mount Pleasant, Lewisham.

910 Triumphs, Humbers, and Bradburys; instant delivery; liberal allowances on second-hand maines.—128, High Rd., South Tottenham.

h.p. N.S.U., magneto, smart machine, in excellent condition; £16 10s.—128, High Rd., Tottenham.

h.p. Twin Moto-Reve, new engine, heavy back tyre, as new; £20.—128, High Rd., Tottenham.

3h.p. Kerry, low built, splendid goer; to clear £7 /4 15s.—128, High Rd., Tottenham.

NE'S!—Special bargain, 1910 6h.p. Speed King Rex, 1909 frame, magneto, specially built for Mr. A. Fenn, guaranteed; £32 10s.

NE'S!—4h.p. Roc, two speeds 1909 engine and B. and B. carburetter, magneto, Whittle belt horn, are belt, valve, tubes, plug, etc., guaranteed; £22 10s.

NE'S!—2½h.p. Humber, free engine, cost nearly £70, good condition and running order, mileage 600, recently overhauled; best offer over £10 accepted.

NE'S!—Special bargain. 2½h.p. Brown, magneto, Davison's tank, with gauges, spring seat, spring rks, guaranteed; £17 17s.

NE'S!—1910 Moto-Reve, only used for trials, etc., Continental tyres, lamp and generator; £35.

NE'S!—1909 5h.p. V.S., two speeds, magneto, Riches detachable tubes, guaranteed; best offer over £38 ken, a real bargain.

NE'S!—5½h.p. N.S.U., Bosch magneto, Mabon clutch, Peter-Unions, new in 1909; £34.

NE'S!—2¾h.p. Kerry, just overhauled and guaranteed; £9 10s.

NE'S.—3½h.p. Excelsior, Palmers, good order, spring forks; £10 10s.

NE'S!—5h.p. twin Princeps, good tyres, in excellent condition; first cheque £8.

NE'S!—Many other bargains. If you want to buy or sell try 69, Leather Lane, Holborn, London. hone, 6299 Holborn.

N., 4½h.p., 4-cyl., late 1908, 1910 improvements, guaranteed; best over £23.—41, Ashford Rd., Cricklewood.

908 P. and M., 1909 fituents, little used, perfect condition; £38; appointment.—85, Kingsgate Rd., ilburn.

EX Twin, 5h.p., powerful and fast, just overhauled, adjustable pulley, take sidecar anywhere, easy arter; £14.—26, Canonbury St., Islington.

½h.p. Excelsior, adjustable pulley, accumulator ignition, spring forks, good running order; 12 guineas. Meredith, Caerwys, Whyteleafe, Surrey.

ERFECTION.—1910 Rex twin Luxe, Palmer cord. Amac; £56; exchange, or offer.—48, Londesborough d., Stoke Newington, N.

h.p. Antoine, magneto, h.b. control, in perfect condition, will climb anything; £15 10s., or near offer. bargain.—23, Aberdeen Rd., Highbury, N.

910 Premier, twin, Tourist Trophy model, new, faultless; must realise; cash only; cause of selling; 12.—110, Clonmore St., Southfields, S.W.

F You Want Bargains in second-hand motor cycles you can get them at Wauch.pe's, 9, Shoe Lane, leet St., London (just off Ludgate Circus).

14.—2h.p. magneto Brown, 26in. by 2in. Continentals, adjustable pulley, Whittle, enamelled grey; trial, ppointment.—83, Dover Rd., Wanstead Park.

910 Triumph, Premier, F.N., and Moto-Reve; instant delivery; best prices in exchange; send particulars.—Batchelor and Co., Clarence St., Kingston.

½h.p. Ariel, very fast, powerful, low seat, splendid condition; 12 guineas, or exchange for lower ower and cash.—313, St. Ann's Rd., Harriugay.

NDIAN, 1910, 5h.p., twin, new few weeks back, scarcely ridden; selling through financial reasons aly; £45.—110, Clonmore St., Southfields, S.W.

N.S.U., 1910, latest model, 6h.p., two speeds, all improvements, not done 100 miles; £48, or exchange ower power.—Letters, J.S., 73, St. Mary Axe, E.C.

909 Rex, 5-6h.p., B. and B. carburetter, 2½ Dunlop, not ridden 200 miles, as new, many extras, spares, tc.; £29.—F., 1, Fieldsway House, Highbury Crescent.

3h.p. Minerva, low frame, long bars, h.b. control, good tyres, Longuemare carburetter, will pull sidecar; 13, or nearest offer.—W.J., 6, Oldfield Rd., Willesden, W.

3½h.p. Triumph, two new belts, spare valve, detachable tube, lamp, horn, tools, tyres in beautiful ondition; £33.—Clement Cady, 18, Allison Rd., Hornsey.

Collier's Motories,

37, Park Cross Street,

LEEDS

(facing Town Hall),

OWING TO REMOVAL WE WISH TO CLEAR THE FOLLOWING.

EVERY OFFER CONSIDERED.

Brand New 1909 TRIUMPH, 3½ h.p., a decided acquisition at £44 10

Brand New 1909 TWIN REX DE LUXE, two-speed, magneto, spring forks and seat, Roc clutch, handle starting, non-skid tyres, and the ideal sidecar mount, 5½ h.p. £48 0

Brand New 1909 3½ h.p. REX DE LUXE, as above, take you everywhere (and bring you back) £45 0

Brand New 1909 3½ h.p. TOURIST REX, five to fifty miles per hour £35 0

1910 V.S. MOTORS, all models, exchanges with good class machines from £49 0

1909 TWIN REX DE LUXE, two-speed, Roc clutch with sidecar, second-hand, but practically equal to new, 2¼in. R.S. Clincher Dreadnoughts, 1¾in. belt, and will do 45 m.p.h. with twenty-four stones up; a regular knock-out £47 10

1909 REX SPEED KING, used in last Tourist Trophy, a really fast single, 1910 Amac adjustable jet carburetter £37 10

1909 3½ h.p. Two-speed HUMBER, spring forks, magneto, Roc clutch, 1910 Amac, Dunlops, a machine that will climb £34 10

1909 3½ h.p. TOURIST REX, another specially good mount, low built, fast, and a model of reliability £33 0

5½ h.p. SPECIAL REX, very low, magneto, handle-bar control, exceptionally fast and good climber £32 0

3½ h.p. P & M., magneto, two-speed, spring forks, good condition, low cash bargain £31 0

1908 Racing REX, 24in. wheels, exceptionally low, yet comfortable, has done 60 m.p.h. on Brooklands. Called 3½ horse £30 0

1908 5½ h.p. TWIN REX DE LUXE, with Roc clutch, magneto, handle starting, rider sprung front and rear, a good mount for sidecar £29 10

1908 TWIN TOURIST REX, 26in. wheels, spring forks easy starter, Bosch magneto, stand and carrier £27 0

ROC, 4 h.p., vertical engine, h. b. control, magneto, clutch, rubber-studded tyres to both wheels, very low and good £23 0

1908 MOTOSACOCHE, in splendid order and condition, low, light, and handy, would suit a doctor £22 10

QUADRANT, 3½ h.p., magneto, spring forks, handle-bar control, 26in. wheels, good order and condition, very powerful £21 10

TWIN ANTOINE, 5½ h.p., very powerful, in fine condition, and goes well. Good for Sidecar... £15 10

ANTOINE, 4 h.p., magneto, 26in. wheels, low M.O.V., a good machine at a low price £18 0

QUADRANT, 3½ h.p., accumulator, spring forks, in good condition, and runs very well, low, and economical £17 10

REX TWIN, 5½ h.p., spring forks, good compression, good general condition, a very powerful machine, suitable for sidecar work, at a decidedly low price £16 10

ARIEL, 3½ h.p., vertical engine, M.O.V., B. and B., Watawata belt, 26in. wheels, been used with trailer and sidecar, very cheap at £15 10

CLYDE, 3 h.p., magneto (h.-t. current), not a new machine, but a good machine at little money £14 15

1906 3½ h.p. REX, low built, spring forks, M.O.V., long bars, cheap and good, especially at £14 10

REX 3½ h.p., H.B., control, very powerful, 22" frame, a good handy mount £11 0

HASKARD, 2¾ h.p., easy starter, trembler coil, very flexible engine, and capable of a really good turn of speed, in very good condition £11 0

ALLDAYS, 2½ h.p., vertical, 26in. wheels, good tyres, spring forks, with carrier, and in good working order £11 0

EXCELSIOR, in splendid condition, and beautiful order, good tyre, good everything. 3½ h.p..... £9 15

REX, 3½ h.p., the John-o'-Groat's model, 22in. frame, an orphan who requires a good home for £9 10

MINERVA, 2½ h.p., splendid condition, goes like a clock, and fit for anyone £9 10

KERRY, 2½ h.p., 26in. wheels, spray, Palmer tyre, very low and handy, decidedly reasonable at .. £9 10

RALEIGH, 2 h.p., vertical, V belt, spray carburetter, two brakes, as good as a modern lightweight £8 15

QUADRANT, 1¾ h.p., very low, 26in. wheels, coil and accumulator, an easy winner at £7 5

TRIUMPH-MINERVA, one of the old brigade but a real good 'un £5 19

WE CATER FOR EXCHANGES.

SEND FOR SUNDRIES AND TYRE LIST.

MOTOR BICYCLES FOR SALE.

2½h.p. Peugeot, long handle-bars, low position, Brooks saddle, all accessories, numbers, new spare tube, fast, reliable; sacrifice £7 18s.—12, Market Sq., Horsham, Sussex.

3½h.p. Rex de Luxe, two-speed gear, handle starting, R.O.M. combination tyres, Matchless pulley and silencer; £33. — Stevens, 481, Southwark Park Rd., London.

2¾h.p. Chater-Lea, Kerry engine, Clincher tyres, Brown-Barlow carburetter, ¾ belt, long bars, has been thoroughly overhauled; 10 guineas.—736, Holloway Rd., London.

MOTOR Cycle, 2½h.p. Ormonde, perfect running order throughout, Palmer back, two new 20 amp. accumulators; £6.—R. Smallbone, The Hollies, Chobham, Surrey.

3½h.p. Brown, magneto, handle-bar control, in good condition, with spares; reason for selling, taking up small car; £15.—T. Peed, 80, Miteham Lane, Streatham.

VINDEC Special, 5h.p., twin, Truffault forks, magneto, adjustable pulley, excellent machine, in sound condition; accept £24, bargain.—Dickson, Croft, Northwood, Middlesex.

REX Featherweight, 2½h.p., magneto, spring forks, Palmer tyre, Brooks belt, lamp, tools, splendid condition; seen any time; £17.—Motorist, 89, Orford Rd., Walthamstow.

3½h.p. Rex, 1908, magneto, little used, good tyres, footrests, exceptionally comfortable, saddle very low; what offers?—L1,496, *The Motor Cycle* Offices, 20, Tudor St., E.C.

MINERVA, 3½h.p., 1907, carefully used, spring forks, enamelled French grey, stand, etc., complete machine; £14 10s.—5, Belgrave Mansions, Coldharbour Lane, Brixton.

1909 Rex, 3½h.p., as new, with horn, spare steel studded, and all tools, very fast; £30, or exchange twin 1909 same make, cash adjustment.—Coombe, 17, Old Broad St., E.C.

J. C. DAVIS.—5h.p. T.T. Rex, in beautiful order, £25, or near; 3½h.p. Kerry, overhauled in every part, replated and enamelled; £12 10s.—A. Cumming, 89, Cromwell Rd., S.W.

3½h.p. Peugeot h.b. control, B.B. carburetter, 26 by 2 Dunlops, copper tank, racing pattern (very low), enamel French grey, new in June; £20, or offer.—50, Guildford St., Chertsey, Surrey.

BAT, genuine De Dion engine and carburetter, 74 by 76 mm., Dunlop, Palmer, Watawata, footboards, low, most reliable, spares, good condition; £13 10s. — Bracher, 30, Guilford St., London.

YOU are not troubled with broken valves on the Bradbury; sole agents for N.W. London. Gardner, High St., Hampstead; for N. London, Stamford Hill Motor Co., 128 High Rd., Tottenham.

TRIUMPH, 1909, T.T. model, in perfect condition, and a very fast machine; selling because am getting 1910 T.T. model; £35.—Edwin Gwynne, White Lodge, Crediton Rd., West Hampstead.

4½h.p. Twin Minerva, late 1907; also 2¾h.p. magneto Minerva; £18 and £12 respectively; both in splendid condition; any trial.—Fox, Wood Cottage, Worcester Park, near Wimbledon.

£6 15s.—2¼h.p. Chater-Minerva, splendid climber, engine practically new; 3½h.p. Excelsior, Druid forks, new Continentals, and belt, adjustable pulley, £8 10s.—Remington Chalet, Sanderstead, Croydon.

7-9h.p. Twin Peugeot Motor Cycle, perfect order, new condition, very little used, low build, torpedo tank, very reliable, fast, and powerful machine, footboards; £25.—R. Wright, Teynham, Kent.

F.N., 2¾h.p., in first-class running order, engine just overhauled by F.N. Co. at cost of £4 10s., new Watawata belt, lamp, and coil, tyres unscratched; seen any time.—179, Selhurst Rd., South Norwood.

1909 Tourist Trophy Triumph, racing and touring extras, £5 5s speedometer, spare covers (new), tube, etc.; cost nearly £70, £38 or with extras £45; details.—30, Smith's Terrace, King's Rd., London.

QUADRANT, 3½h.p., good condition, very reliable, new Bosch magneto, new Palmer cord on back, new Riches butted tube on front, new Shamrock-Gloria belt; £25.—Norfolk Lodge, Leicester Rd., New Barnet.

1907 3½h.p. Triumph, magneto, in magnificent condition, handle-bar control, Clincher studded front, new Clincher Dreadnought back, whole machine has been well cared for; £25.—A.B., 43, Southbrook Rd., Lee, S.E.

£10 10s.—3h.p. Fafnir, Cheter-Lea throughout, footboards, footbrake, spring forks, Clincher front, Continental back, new, coil, and two accumulators, guaranteed perfect.—Foulds, 32, Belhaven St., Grove Rd., E.

A BARGAIN, first cheque secures.—3½h.p. Premier twin, 1909, good as new, has not been ridden 200 miles, all spares, lamp, horn, etc.; 38 guineas.—Apply S.G.H., 11, London Rd., Sevenoaks, Kent.

F.N., 4-cyl., 4½h.p., with Manning tricycle attachment, perfect condition, magneto, Palmer cords, lamp horn, tools, spares; cost £62, take £27, offer, or will sell separate.—A. Fort, 53, Hallam St., Portland Place W.

1907 Triumph, late, just been overhauled, best condition, magneto, adjustable pulley, h.b., control 1909 valves, new piston, new tyres, two spare covers tubes, etc.; £27.—H., 6, St. Agnes Place, Kennington, London.

MOTOR BICYCLES FOR SALE

1910 Triumphs, Rex, P. and M., Douglas, Kerry-Abingdons, etc., in stock at the Eastern Garage Co.'s depot at 418 Romford Rd. Forest Gate. We shall be pleased to quote allowances for second-hand machines. The following are thoroughly reliable:

1909 Triumphs, with first-class accessories; £34 each.—Below.

1908 Triumph, lamp, generator, horn, etc., guaranteed perfect; £28.—Below.

1909 Tourist Rexes, 3½h.p., complete with accessories; £28 each.—Below.

1908 Rex, 3½h.p., T.T. engine, magneto, spring forks, rubber studded tyre, all necessories and tools, a splendid machine; £20 —Below.

1909 F.N., 4-cyl., new last June, F.N. footrests, h.b. control, R.O.M. combination tyre, with nearly new sidecar; £35.—Below.

1908 Roc, 4h.p., military model, two-speed gear and free engine, Bosch magneto, h.b. control, new R.O.M. combination tyra, appearance and condition perfect; £25.—Below.

1909 Peugeot, 5h.p., Chater, adjustable pulley, R.O.M. and Palmer cord covers, Dimson's ganges and fillers, F.R.S. lamp, etc.; £20.—Below.

1908 Peugeot, 5h.p., No. 6 Chater frame, Bosch magneto, B and B. carburetter, h.b. controlled, torpedo tank Brooks saddle, very low; £17.—Below.

1909 Minerva, 4½h.p., twin, magneto, spring forks, Roc two-speed and clutch, Amac carburetter, 2½in. Palmer cord tyres, numerous refinements, ideal machine for sidecar; £33.—Below

1909 Minerva, 3½h.p., magneto, spring forks, Amac carburetter, entire handle-bar control, several special fittings, grey finish, good as new; £26.—Below.

1906 Minerva, 2½h.p., Bowden h.b. control, low built, perfect order guaranteed; £12.—Below.

1907 (late) Vindec Special, 5h.p., Truffault forks, Bosch magneto, h.b control, adjustable pulley, tyres (R.O.M. back) and belt nearly new, enamel and plating excellent; £23.—Below.

THE Eastern Garage Co have, in addition to the above, a number of good machines at prices ranging from £7 Please favour us with a visit at 418, Romford Rd., Forest Gate, or telephone, Stratford 10. Telegrams, Egaraco, London.

MOTOSACOCHE, splendid running order, spring forks and handle-bar, Clincher tyres, as new, tools, stand, carrier, and horn; £15.—Cottis and Sons, Ltd., Epping.

3½h.p. Humber, 1909, Roc two speeds, R.O.M. combination back, Dunlop front tyres, splendid condition; £30.—Cottis and Sons, Ltd., Epping.

3½h.p. Kerry Chater frame, low, h.b. control, B100 trembler, footboards, dropped bar, splendid condition, three pulleys, all spares, Lucas Acetyphote horn, bag, tyres good, Model Course back; £13 cash or plus £4 15s. with sidecar.—9, Winter Av., Southend-on-Sea.

1908 Triumph, Cowey speedometer, Lucas 50s. lamp, spare belt and tyre (never used), three bags full of tools, valves, plugs, etc., all in perfect condition, had very little wear, cost over £60 take £33; 1907 Triumph, handle-bar control, lamp, and spares, in excellent condition, take £23; bought car.—E. Grout, Glenbourne, Ridgeway, Enfield, N.

2½h.p. Kerry, handle-bar control, footboards, long handle-bars, low position, handle starting, fast, and reliable, fine sidecar machine, all accessories, numbers; sacrifice £12, or exchange lower power and cash adjustment.—12, Market Sq., Horsham, Sussex.

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

2h.p. Quadrant, splendid condition, spray; £7, or sidecar and cash.—Below.

2h.p. Minerva, nearly new Clinchers, spray, French grey, green lined, first-class condition throughout; £7, or push cycle and cash; trial runs or cash offers invited for either above.—Harding, Halberton, Tiverton, Devon.

3½h.p. Kerry, h.b. control, new belt, tyre, plating and enamelling perfect; £11 11s.—Cornish, Crediton.

£17.—3½h.p. Kelecom, good condition, climb anything, new Dreadnought tyres.—Bantten, 39, East St., Bridport.

TRIUMPH and Motosacoche, 1910 models in stock; cash exchange, deferred payments.—Dan Guy, Weymouth.

3½h.p. Quadrant, late 1907, good hill-climber, spring forks, Palmer tyres; £18.—"Oakville," Hartley, Plymouth.

BAT-J.A.P., 4h.p., new last month, scarcely used; 40 guineas, or near offer; cost £48 10s.—Hicks, Tregurra Terrace, St Austell.

3½h.p. Triumph, new December, 1908, not run 1,000 miles; £30; condition as new.—Saunders, 73, Howell Rd., Exeter.

NSU., 3½h.p., magneto ignition, spring forks, very fast, splendid climber, with about £5 worth extras; £16.—Reynolds, Broadway, Dorset.

BARGAIN.—3h.p. motor cycle Ascot vertical), splendid machine, good Dunlop tyres, just overhauled, thorough condition; £9; owner no further use; low build.—Apply, F. Wheeler, 6, Valis Way, Frome, Somerset.

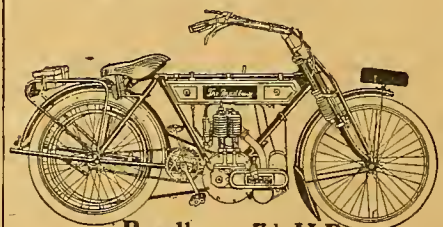
There are a few lines on this page, but the best line, and the

BEST LINE IN THE TRADE,

is the

BRADBURY

3½ h.p. MOTOR.



Bradbury 3½ H.P.

An expert opinion declared it to be ahead of anything yet turned out in the Motor World.

Owing to its special frame construction, no other Motor Cycle is as rigid, as well balanced, as steady on the road, or provides the same accessibility for repairs or re-adjustment to engine parts.

—:o:—

Write for Catalogue of the Best British Built Motor Cycle.

Bradbury & Co. Ltd., OLDHAM.

MOTOR BICYCLES FOR SALE.

SECTION X.

Scotland.

1 [illegible] Rex, 5½h.p., 1907, magneto, spring forks, cant lever saddle, first-class order; £16.—Bell, Crescent Dalmuir.

TRIUMPH, 1909, little used, full equipment, perfec running order; £36.—Durie, 12, Lewis Terrace Edinburgh.

3½h.p. Minerva, good condition, recently overhauled new tyres, etc.; £16.—Garner, 9, Regent Park Ter race, Glasgow.

2¼h.p. Motor Cycle, magneto, grand condition; £5 owner not a motor cyclist.—Particulars, Wilson 42, Park Place, Lockerbie.

F.N., 1910, two-speed, lightweight; immediate deliver from stock; catalogues post free.—Rossleigh, Ltd 32, Shandwick Place, Edinburgh.

TRIUMPHS, 1910 standard, or free engine models immediate delivery from stock; catalogues post free —Rossleigh, Ltd., 32 Shandwick Place, Edinburgh.

2¾h.p. Stevens Engine, 1909, B. and B. carburetter handle-bar control, good condition; £12.—Cuth bertson, 17, Union St., Edinburgh.

2½h.p. Brown, vertical engine, Longuemare carbur etter, Dunlop tyres, in good running order; £1 10s.—Emond, 37, Well St., Paisley, Scotland.

SCOTLAND'S Largest Motor Cycle Firm.—Rex, V.S. Indian, Moto-Reve, Phelon and Moore, Zenith Douglas, Roc, Griffon, we stock all these, and can supply any other make.—Alexander's Motor Exchange, Lothian Rd., Edinburgh.

SECTION XI.

Ireland and Isle of Man.

3½h.p. Rex, splendid running order; offers; exchange lightweight.—Lucas, Courthouse, Wexford.

TRICARS FOR SALE.

PULLMAN'S.—Aster tricar, 6½h.p., water-cooled, two speed; £25.

PULLMAN'S.—Wolf tricar, 4½h.p., w.c., two-speed £20

PULLMAN'S.—Steven's Tricar, 4½h.p., w.c., two speed; £20.

PULLMAN'S.—Quadrant tricar, 5h.p., twin, two speed; £22.

PULLMAN Bros., London Rd., Norbury, London.

SINGER Tricar, 9h.p., splendid condition; bargain.— Bush, Wells Rd., Bath.

4½h.p. Riley Tricar; £25, or part exchange motor cycle —Waterfield, 23, Mount St., Nottingham.

9h.p. Riley Tricar, re-painted and overhauled, splendid machine.—W., Elms House, Hammersmith.

ARIEL, magneto, three speeds; must sell, moving; no reasonable offer refused.—W., 94, Norwood Rd., S.E.

5-6h.p. Twin Sarolea Tricar, in perfect order, nearly new; £30; trial.—Taylor, 8, West Bank, Stamford Hill, N.

TRICAR, 5h.p., twin, in excellent order; £16.—Mat thews, stationer, Lower Mortlake Rd., Richmond Surrey.

3½h.p. Rex Detachable Tricar, handle-bar control £8 10s.—Particulars, 64, Sussex Rd., Stockwell S.W.

6h.p. Rex Triette, R.O.M., in good condition; £20, o exchange magneto motor cycle.—Shaw, Glenshira Grantham.

QUADRANT Tricar, 5½h.p., good condition; tria given, £20.—Chapman, 2, Ryedale, Forest Hill Rd. East Dulwich.

3½h.p. Rex Tricar, belt drive, accumulator, coil enamelled French grey; £12.—785, High Rd. Leytonstone.

REXETTE Tricar, 8-10h.p., wheel, two-speed, water cooled, seats three, grand order.—14, Ecclesal Rd., Sheffield.

3½h.p. M.M.C., Chater forecar, beautiful condition; after 7, Saturday 2.—1, Marten Rd., Chingford Rd., Walthamstow.

3½h.p. Lagonda, coach-built, Chater-Lea, handle start ing, two speeds, splendid condition; £16.—38, Frances Rd., Windsor.

£15 Each, or nearest offer.—6h.p. twin Advance, 4 h.p. Rex; must clear; want room.—St. Edmund Garage, Northampton.

GENN'S Wimbledon.—De Dion, water-cooled, Chater F frame, spring coach body, splendid order; £23. —Motor Works, Gap Rd.

WOLF Water-cooled Tricar, three speeds, free engine coach-built, Clinchers; £20, a bargain.—Chilton High St., Watford. Photo.

5h.p. Gerrard, free engine, water-cooled, three speeds tyres excellent, back steel studded, comfortable seats; £15.—Cooke, Bank House, Tenby.

5½h.p. Twin Antoine, Lows variable gear, large clutch, open frame, just overhauled; £25; going Canada reason selling.—Mayes, Whitfield, near Dover.

THE MOTOR CYCLE SUPPLEMENT

M.C.C. OPENING RUN AND EASTER TOUR.

It has been decided not to hold the opening run on March 12th as originally intended, but to combine it with the Easter Tour to Salisbury. Eastertide falling so early this year the opening run will still be early in the season. It is expected that this combination event will prove a big success, especially as the Land's End and back run for the Jarrott Cup and gold medals will take place during the holidays. Members taking part in the run to Salisbury will be able to interest themselves in the competitors in the long journey, Salisbury being on the route of the Jarrott Cup competition. Entries are rolling in for the last-mentioned event.

MORE LIGHT ON THE QUARTERLY TRIALS.

"Having read with interest the many letters appearing in *The Motor Cycle* in reference to the last Quarterly Trials, I as a competitor, riding a 3½ h.p. Bradbury, may be able to throw some light on the various points raised.

"Taking Mr. Eli Clark's letter first, he is perhaps not aware that the first two or three competitors to arrive at the bottom of Dashwood Hill had to start practically on a sheet of ice without the aid of ashes, which were thrown down after the first two or three had started, which I think he will admit gave some advantage, and, moreover, these arriving later had the undoubted advantage of riding straight up the hill. Perhaps he was one of these lucky men!

"In my case, I was the second man to start up the hill, and, unfortunately, fell, as my front wheel fouled a rut.

"Mr. W. Pratt (P. and M.) followed me, and he also fell from the same cause. We both went to the bottom of the hill again and started away from the ice-covered road, and made clean ascents, and, taking this into consideration, it must be admitted that the marks awarded are quite fair, as all the riders who came after gained an undeniable advantage.

"I note he refers to Messrs. G. Lee Evans and W. O. Bentley being awarded non-stops; this award I do not agree with, as I saw the conditions under which they stopped in Berkhampstead.

"I think the above remarks will fully reply to Mr. Perryman's letter also, although in my case I should like to say the reason of my failure on Rectory Hill was caused through a slipping belt, and not through a mechanical trouble; but I feel, had I not had this trouble, I should have been awarded a non-stop.

"I was under the impression that all competitors in trials entered agreeing to abide by the judges' decision, but it appears by all the correspondence taking place that some of the competitors wish to make rules to suit their own particular case.

"I am pleased to say I am quite satisfied always to abide by the decision of the judges, under whom I enter, and I think a word of appreciation is due to them in their great task, and that our object should be rather to assist them than to disparage them.—W. Cooper (a satisfied competitor)."

A FIVE MILE MOTOR CYCLE RACE AT GLASGOW.

Last Tuesday, the 22nd inst., the Glasgow Theatrical Sports (which had been suspended from the Tuesday of the previous week owing to a snowstorm) were brought to a successful conclusion. The Celtic Park track, which is three and a half laps to the mile, was commissioned for the events, and the day proved fine and the track dry. Mr. A. Gordon Bostock, on his new 3½ h.p. Bat-J.A.P., scored a runaway win in the five-mile motor cycle race, leading by five and a half laps, *i.e.*, about one and a half miles, at the finish. Mr. Hilton, riding a 3½ h.p. Triumph, was second. The winner's time was 5m. 34s., which, it must be admitted, was exceptionally good, considering the damp atmosphere and the small size of the track. Mr. Bostock expects to ride his new mount in the forthcoming Tourist Trophy Race, and, judging by the speed he accomplished on his first public appearance on it last week, he should prove a competitor to be reckoned with. By the way, Mr. Bostock's machine is fitted with the 1910 pattern Amac carburetter with adjustable jets, and he reports that it is most satisfactory, combining easy starting and high engine speed. He used a 3½ to 1 gear, and the engine is an ordinary standard pattern 85×85 mm. An unusual position has been adopted for the exhaust valve lifter lever on this particular Bat machine. Instead of being placed immediately under the handle-bar grip, it is in front and at a level height with the handle-bar. This position proved to be most satisfactory for the Celtic Park track, as a racer must sometimes raise the valve to pass another competitor on the banking, the track being narrow, and it is most necessary that the lifter lever should be in the most convenient position.

A. G. Bostock on his 1910 mount—a 3½ h.p. Bat.

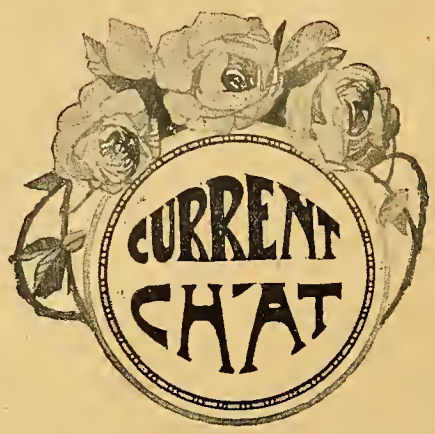
TOURIST TROPHY RACE.

H. H. Bowen has decided to ride a Bat motor bicycle in the T.T. Race, and A. J. Moorhouse advises us that the mount he has selected is a twin-cylinder Indian.

Further entries for the T.T. were received last week as follows:

P. Brewster (3½ h.p. Norton)
J. Jones (3½ h.p. Triumph)
H. Rem Fowler (1 machine)

The above bring the total number of entries to thirty-four.



Police Traps.

We have received information of a police trap in Willesden Lane, working from the railway bridge to the Prince of Wales public-house.

Motor Cycle Competition "down under."

A reliability trial from Timaru to Dunedin—a distance of 258 miles—was promoted by the South Canterbury (N.Z.) Motor Cycle Club on December 25th and 28th. The trial was divided into two sections—one for trade riders, the other for private owners. The former was won by G. B. Brown and the other by H. Mayo, both riding 3½ h.p. Triumph machines. Moreover, another rider of a Triumph—C. E. Hassell to wit—was first in the petrol consumption test over the same course.

How Long will an Air-cooled Engine Run?

On January 24th, at 10 a.m., we read that a 1910 Yale 3½ h.p. stock motor bicycle was started in the window of the Oberwegner Motor Co.'s store at Toledo, Ohio, and ran continuously without one stop, and without fan or other cooling device at an average speed of 1,285 revolutions per minute until stopped at 10 p.m., Saturday, January 29th, a period of 132 hours. A cyclometer applied to the rear wheel, we are told, registered 2,794$\frac{1}{10}$ miles. After the test three experts examined the machine carefully, and found it in perfect condition, motor free, and compression and bearings perfect.

M.C.C. Team Competition.

It is a strange but true fact that no club other than the Motor Cycling Club and the Coventry and Warwickshire Motor Club has won *The Motor Cycle* Cup in the above competition, although it is now six years since the competition was inaugurated. There has, however, been some very close running for the cup. For instance, the St. Albans Club (now the Herts County A.C.) had hard lines last year as the team started a man short, but the other five gained all possible marks. The Birmingham M.C.C. also came near to winning on one occasion, one of the team losing marks for arriving home before the minimum time limit. It was afterwards found that this had deprived the Birmingham team of the cup.

A Measured Furlong.

A police trap is in working order on Shooter's Hill Road, one furlong, the point being near Kent Villas.

A Leader in America.

We regret to announce that F. P. Prial, publisher of the American *Motor Cycle Illustrated*, died in New York on Monday, January 31st, of typhoid.

A Return to Flat Belts.

The very latest from the Hendee factory is a 4 h.p. single-cylinder Indian with free engine clutch and gear reducing rear pulley, the transmission being by means of a 1½in. flat belt. It is claimed to be the only perfect belt drive ever produced. The driving pulley is 8 inches in diameter, and the driven pulley 10 inches. The high speed at which the belt runs and the large gripping surfaces are considered to be the main factors for the success achieved by this new model during the 4,000 miles it has been tested on the road. For the present this machine will only be marketed in America.

A Hill-climb for Standard Machines.

The open hill-climb to be arranged by the Bradford M.C.C. on June 25th will be a thoroughly sporting event, and we are specially asked to mention that ample classes will be provided for the amateur with his standard machine.

Motor Cyclist taken for an Anarchist.

A Russian correspondent informs us that at the time of the Czar's visit to Italy extraordinary precautions were taken to ensure his safety. A motor cyclist, residing in one of the towns on the route through which the train carrying the Czar passed, had the misfortune, when trying his motor cycle on the stand, to have the top of the cylinder blow off with a loud explosion. No one was hurt, but the next day the motor cyclist's house was visited by the police, his typewriter and papers were removed, and he was put under arrest and kept in prison for seventeen days. All this was occasioned by an explosion which the police suspected had something to do with an anarchist bomb. Of course the motor cyclist received no compensation from the police when they found out that they were mistaken, and the only thing that they could possibly bring against him was that he had once sold a motor cycle to a suspected anarchist and had visited the house to collect the money.

A.G.M. of the A.C.U. Cou

The annual general meetin
Auto Cycle Union council has
for Saturday, March 19th,
Piccadilly, W., at 5.30 p.m. A
to be placed on the agenda n
the hands of the A.C.U. sec
Wednesday next, March 2nd.

A Prospective Competitor for

A. Gordon Bostock, of
whose photograph appears on
page of this supplement, ha
received delivery of his 1910
a 3½ h.p. Bat-J.A.P. This
Mr. Bostock is now busy
through its paces, and he hop
competitor in the Tourist Tro
next May.

Ten-mile Speed Limits

The Secretary for Scotland
an order imposing a ten-mile
motor cars and motor cycles be
in the following streets of the
Langholm: High Street,
southern boundary of the Fr
Manse to thirty yards beyond
known as the Bar Entry; Cha
(New), (*a*) from twenty yard
Elizabeth Street to its junc
High Street; (*b*) from the ea
the Bowling Green to a poin
the North U.P. Manse.

A rest by the wayside—a reminder that

Sutton Bank Wintered Badly.

Harrogate and District M.C.C. s that the surface of Sutton is too bad at present for a hill- ng competition. Consequently ter-club event which was to have held between the North-west n M.C.C. and the Herts County on Easter Saturday will take place ther venue, the location of which e kept secret. It would appear the A.C.U. will have to find r acclivity for this year's annual mb.

r Cycles at the Manchester Show.

omparison of the total number of cycles on view at the various ester shows from the earliest may be interesting:

01 Show	...	2	motor cycles.
02 ,,	...	11	,, ,,
03 ,,	...	78	,, ,,
04 ,,	...	120	,, ,,
05 ,,	...	35	,, ,,
06 ,,	...	40	,, ,,
07 ,,	...	49	,, ,,
08 ,,	...	38	,, ,,
09 ,,	...	59	,, ,,
10 ,,	...	45	,, ,,

gards last week's show, it may be ned that several applicants for wishing to exhibit motor cycles not be accommodated.

ie are not uncommon even in these climes.

Time to Light Lamps.

Lamp-lighting times at Greenwich for this week are:

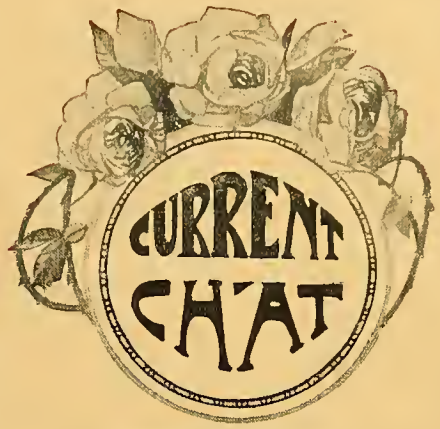
Feb. 28th	...	...	6.35 p.m.
Mar. 2nd	...	...	6.39 ,,
,, 4th	...	...	6.42 ,,
,, 7th	...	...	6.47 ,,

From the Atlantic to the Pacific Coast by Motor Cycle.

We have a most interesting article in the press entitled "Across the American Continent on a Motor Cycle," by Stanley Bowmar, and we expect to be able to publish the first instalment next week. The author describes in a bright and breezy style his many privations and exciting experiences during the 4,000 miles journey from the Atlantic to the Pacific coast, including an encounter with rattle snakes, a night in a dilapidated ranch house, lost in the prairie, a blinding snowstorm, a forty-mile walk for petrol, several miraculous escapes from being run down by overland expresses whilst riding between the rails, his acquaintance of cowboys and shepherds, a long railway journey in an empty ice-box, and the final effort to San Francisco.

A.C.U. Legal Department.

The benefits of the Legal Department to A.C.U. members were recently exemplified in the case of a member of the Oxford M.C.C. The motor cyclist in question was riding his machine near Banbury, and on the road he passed a horse and cart. The driver of the latter was evidently not attending to his business, for the horse commenced to prance about, and, in endeavouring to run alongside and catch the reins, the driver was unfortunately knocked down and the wheels of the cart passed over and killed him. His relatives obtained £100 compensation from his employer under the Employers' Liability Act, whereupon the employer's insurance company, having paid the claim, entered an action against the motor cyclist for the recovery of the amount paid out to the relatives of the deceased, on the ground that the noise made by the passage of the motor cycle constituted a nuisance on the highway, and that the rider was responsible. As the point involved generally affected the interest of motor cyclists, the A.C.U.'s solicitor was instructed to contest the case, with the result that the plaintiffs have since withdrawn their claim, paying all costs. Without expert legal defence the motor cyclist would probably have lost the case.



Neuchatel Hill-climb.

The coming summer will witness a repetition of the Neuchâtel hill-climb on the Chaumont route, the Union Motocycliste Romande having entrusted the Berne section with the organisation of the event.

Accessory and Equipment Issue.

The issue of *The Motor Cycle* for March 14th will be a special accessory and equipment number, and will contain specially illustrated descriptions of practically every known accessory on the market, including tyres, riding apparel, lamps, and electrical appliances. We venture to think that this special issue will be of considerable interest and service to motor cyclists at this time of the year, most of whom are contemplating the purchase of one or more of the numerous articles which will be dealt with. Although the number of pages will be necessarily very much increased, the price of the issue will be one penny as usual. Motor cyclists should make a point of ordering this number at once to avoid disappointment

Motor Union Meeting.

The monthly meeting of the General Committee of the Motor Union was held at the Union's Offices at Caxton House, Westminster, on February 23rd. In the absence of the chairman, Mr. Joynson-Hicks, who is at present in the South of France, Mr. C. H. Dodd (vice-chairman) presided over a well attended meeting. In presenting the report of the Finance Committee, the Chairman drew attention to the very satisfactory increase in the receipts from individual members. Of these over 9,000 are now included in the membership of the Union. The Legal Committee reported that they are considering proposals for securing the proper lighting of all vehicles and cattle on the highway at night. The Motor Cycle Committee is still in communication with the Army Council on the subject of the organisation and training of motor cyclists with a view to their assisting the military forces in time of national emergency. By arrangement with the Wiltshire County Council, the M.U. special road signs are to be erected at dangerous places throughout the county of Wiltshire.

(SEE ALSO PAGE 173.)

CLUB NEWS.

(SEE ALSO PAGE 173.)

Redcar Motor Cyclists Unite.

A motor cycle club has been formed for Redcar and district. All readers residing in Cleveland are invited to send their names and addresses to the secretary, Mr. F. C. Jones, 30, Vansittart Terrace, Redcar.

Middlesbrough and District M.C.C.

The committee of the above club met on Monday evening last at headquarters, and one of the main reasons was that no definite word had arrived from Mr. Scott *re* his lecture planned for February 23rd. Under the circumstances, it was decided to postpone the lecture. It now transpires that Mr. Scott's telegram had been misdirected, and had been delivered to a wrong address. It is to be hoped that another date can be fixed, as the event has aroused much interest locally. The committee also decided to hold the following events during 1910: Opening run, Richmond (Yorks), 200 miles reliability trial for Gjers Cup, fuel consumption trial for cup to be presented by Mr. Stanley Sadler, three hill-climbs, team trials, balloon race, paperchase, inter-club meets, Whitsuntide tour to Scotland, and August tour to the southern and western counties.

Essex M.C.

The A.G.M. will be held at the Great Eastern Hotel Liverpool Street, E.C., on Tuesday, March 8th, commencing at 8 p.m. Notices for the agenda must reach the hon. secretary by first post to-morrow (Tuesday).

East Lancashire M.C.C.

At a meeting last week it was decided to hold fortnightly club runs, and to join in the annual meet of Northern motor cyclists at Richmond, Yorkshire, on Good Friday.

Motor Cycle Club for Redditch and District.

To-morrow (Tuesday), at 8.30 p.m., a meeting is to be held at the Warwick Arms Hotel for the purpose of forming a motor cycle club for Redditch and district.

Westmoreland Motor Cycle Club.

The above club has recently been formed. The membership had reached forty last week, and is steadily growing. It has been decided to affiliate to the Auto Cycle Union. The subscription for the first year is 7s. 6d. (badge inclusive). The hon. secretaries, Messrs. C. B. Robinson and A. Ruthven, Kendal Green, Kendal, will be pleased to hear from readers interested.

Ayr and District M.C.

On Thursday evening last Mr. Quintin Clark submitted his "Impressions of the Five Days' Scottish Reliability Trial" to an appreciative audience of members and friends. He described in detail the route followed, his humorous sallies and excellent limelight illustrations providing a most enjoyable evening. The next lecture takes place on the 9th March, when Mr. J. Robertson will deliver a paper on "Magneto Ignition."

Glasgow M.C.C.

At the A.G.M. last Thursday, the president, Mr. D. S. Baddeley, occupied the chair. The secretary's report showed that there had been a decrease in membership of five since the previous year. The financial statement for the year showed a small decrease in the credit balance, due chiefly to expenses incurred in sending competition teams to Edinburgh. The report and financial statement were adopted, and the officials elected. The competitive events this year will include two hill-climbs, a flexibility trial, speed-judging contest, twelve hours' reliability trial, petrol consumption test, and probably a gymkhana.

FUTURE EVENTS.

Mar. 16—(Wed.) British Motor Cycle Racing Club Meeting at Brooklands.
" 25—General Meeting of Northern Motor Cycle Clubs at Richmond, Yorks.
" 25-28—M.C.C. Opening Run. Easter Tour to Salisbury. Jarrott Cup Competition.
" 25-28—N.W. London M.C.C. and Herts. County A.C. Inter-club Trial to Harrogate and back.
" 28—Brookland A.R.C. Easter Meeting (two events for motor cycles.)
" 30 to April 2—Exhibition of Motor Cycles, at Leicester, Association Hall.
Apl. 13—(Wed.) B.M.C.R.C. Meeting at Brooklands.
" 20—A.C.U. Second Quarterly Trial.
" 27-28—Brooklands A.R.C. Meeting.
" 30—M.C.C. Members' Hill-climb.
May 4—B.M.C.R.C. Meeting at Brooklands.
" 13, 14, and 15 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.
" 26 (Thursday)—International Motor Cycle T.T. Race in the Isle of Man.

Scarborough and District M.C.

Mr. H. Frain, Snainton, S.O., Yorkshire, is now the hon. secretary of this club, and all future communications concerning the club should be addressed to him.

Doncaster and District M.C.C.

At a meeting on the 23rd inst., a club was formed as above, and officers and committee appointed. Another meeting is arranged for to-morrow (Tuesday), at 8 p.m., at the Prince of Wales Hotel, Baxter Gate, for the formation of rules and to enrol new members. Will riders interested kindly attend or forward names and addresses to the secretary, Mr. Geo. F. Stafford, 7, Baxter Gate, Doncaster.

A Proposed Club for Southport and District.

A meeting was held last Thursday, the 24th inst., for the purpose of forming a motor cycle club for the above district. Motor cyclists not notified, and wishing to join, should communicate with either James F. Reid, 87, Liverpool Road, Birkdale, or R. Holford Jones, 9, Westbourne Road, Birkdale.

Walthamstow M.C.

An interesting lantern show has been arranged at headquarters, Rose and Crown, Hoe Street, on Wednesday next, at 7.30 prompt. Members are asked to attend in full force, together with lady or gentleman friends.

The opening run has been fixed for Saturday, April 2nd.

INTER-CLUB COMPETITION AT EASTER.

Reference has already been made in these pages to the inter-club competition which will take place during the Easter week-end between the North-west London M.C.C. and the Herts County Automobile Club (Motor Cycle Section). The competition will be run for a handsome silver cup presented to the Herts A.C. by the Service Co., Ltd., for an inter-club team trial from London to Harrogate and back. The hill-climb on the Saturday, which was to be held on Sutton Bank, will not take place on this famous acclivity, as the surface (so the Harrogate and District M.C.C. reports) is too bad. But we understand the latter body has found another hill, which, until the actual event, will be kept secret from the competitors.

The Service Silver Challenge Cup, presented to the Herts. County A.C. (motor cycle section) for an Inter-team Competition.

At a committee meeting of the North-west London M.C.C., held last Wednesday, it was decided to award silver cups and medals to the successful competitors, in addition to the Service Challenge Cup, which is illustrated herewith. A special cup will be awarded for the hill-climb on March 26th.

THE MOTOR CYCLE

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Motor Cycle Taxation.

A LETTER which we publish this week is sufficient apology for pointing out, as we have already done on several occasions, that the motor cycle tax *per se* is an injustice in comparison with other pastimes and luxuries which remain untaxed.

For example, it seems somewhat unfair to tax a motor cycle rider £1 per annum for the use of a machine which does practically no damage to the roads and to allow the owner of a hunting or saddle-horse to go scot free. Speaking broadly, the average horse used for hunting or saddle exercise is worth more than the average motor bicycle, and inflicts considerably more damage on the road surface than the pneumatic-tyred motor cycle. We are not grumbling at the amount of the tax, neither should we like to say that motor cyclists should not be taxed at all. We think every motor cycle owner is willing to pay for the pleasure he derives from the pastime, and also to contribute towards the maintenance of the roads on which he rides, but he naturally feels indignant at being singled out for taxation.

Those who can afford to pay £50 or £60 for a motor cycle do not feel the £1 per annum tax, but there are thousands of riders who do not pay anything like that amount; in fact, second-hand motor cycles can be bought in good riding condition at almost any price from £10 upwards, and the owners of these machines complain not without reason. They say if they have got to pay 20s. per annum for the right of using a motor cycle, in addition to 5s. for driving licence and 5s. for registration, owners of saddle-horses, for instance, should be mulcted to the same extent.

Road Dangers at Night.

IT appears that the steps taken by the Auto Cycle Union to endeavour to get the local authorities to enforce a regulation compelling drovers to show a coloured light when driving cattle or sheep after dark on the highway have met with ridicule in many cases. It is really astounding the short-sighted policy of some men who are supposed to consider especial cases and issue byelaws when deemed advisable. With so many accidents happening in different districts solely through the absence of a warning light, one would imagine that the authorities would regard the matter with a little less hilarity, and endeavour to find some solution of the trouble. Their one idea seems to be that motorists desire every vehicle and obstruction to exhibit a warning light so that they (the motorists) may travel faster in the dark. This is an entirely wrong idea, and all we can say in reply is that it is our fervent wish that soon county and district authorities will be composed of men capable of considering the question impartially from every standpoint. Judging from the position assumed, it does not seem to matter greatly to them whether the lives of His Majesty's subjects are endangered or not. Their refusal to take up the matter in a proper spirit amounts to nothing short of neglecting the public safety. If in exceptional circumstances it is necessary to drive cattle after dark, it is no great hardship for the drover to exhibit a warning light, if only for the safety of the cattle! Owners of cattle cannot, and will not, see the matter in this light. They seem to prefer to take the risk of their property being damaged, and then take action in the courts, knowing that they will be sure to be favoured in the verdict.

ACROSS THE AMERICAN CONTINENT ON A MOTOR CYCLE

By Stanley Bowmar.

WHAT one sees of a country from the blurred windows of a railway carriage has to me always seemed unsatisfactory. Especially was it my desire when in the United States some time ago to make something more than a nodding acquaintance with the people of the Far West, and that was the reason why I decided to cross from the Atlantic to the Pacific Coast on a motor cycle. Had I had experience (I did not then know even the first thing about motor cycles, never having ridden one), I should doubtless have rejected a machine so cumbersome and unsuitable for the roadless West in favour of a strong bicycle, which could have been carried across fords, sand draws, and deserts.

Friends, some of whom knew a little of the West, were loud in their warnings of dangers and difficulties, and other folk, who, as I afterwards discovered, drew considerably on their imaginations for their knowledge of western life, were even more insistent in their tales of woe inevitable. They spoke of devastating tornadoes and blizzards, dangerous rattle snakes, bears, wolves, and mountain lions, and they discussed with greatest gravity the question as to which make of revolver would most effectively serve me in the wild and woolly West.

Just what did happen on that eventful journey will be told in this article.

The Start from Buffalo.

I left Buffalo, N.Y., on June 12th, and, following the main railway route *viâ* Cleveland, Chicago, Omaha, and Grand River, turned 100 miles south to Denver, Colorado, this section (roughly half) of the 4,000 miles journey being completed at the rate of 80 miles a day. Without mishap, should I say? Not exactly. On roads so wretched as those of even the middle and what might be termed the near western states accidents are inevitable to the motor cyclist, who, much against his own inclination, speedily becomes an acrobat of no mean accomplishments. Through skidding on slimy roads and coming to grief in yawning cart ruts I made the acquaintance of the bottom of more than one ditch, the centre of hedges innumerable, and one night near Rodger (Iowa) was pitched headlong over the side rail of a bridge into the creek below. Yankees, you know, have a penchant for improvements, for things "just a little different," and their small bridges certainly achieve the desired result. Instead of the earth (metalled roads are rare) being levelled up to the bridges, the first plank on either side is usually four or five inches above the level of the road—an arrangement quite unsuitable for fast night riding.

It was frequently impossible, especially in Nebraska, where population became sparser and when the motor worked unsatisfactorily, to reach a town or a ranch until late at night. One stormy night between Omaha and Grand River the only available accommodation was an old straw stack, and on another occasion in Nebraska (at Ogallala) an hotel keeper whom I knocked up in the early hours of the morning refused to have anything to do with me, accusing me of being a hobo "wanted" by the district police. Certainly appearances were against me, as they frequently were

Route followed by the writer on his trans-continental ride of 4,000 miles. Several hundred miles were ridden between the railway lines.

Across the American Continent on a Motor Cycle.—

Bespattered with mud and oil, no doubt I presented a by no means fascinating appearance.

My First Acquaintance with Rattle Snakes.

I made my acquaintance with rattle snakes when lost in a dreary stretch of prairie between Fort Morgan and Duelle (Colorado). Their warning rattle was at first as startling as it was frequent. One, objecting to the intrusion of the front wheel, made a vicious stab at my right leg, but before he had curled up ready for the spring I jumped aside to a safe distance.

Bridge across the Great Salt Lake.

Enumeration of my motor troubles thus far would weary even the most enthusiastic devotee of the little self-propelled machines. My motor cycle was a 1906 pattern, and it, as we all know, was very, almost totally, different from those now on the market. At the same time, it was not that my American machine—a 2¼ h.p. Merkel—was altogether unsatisfactory. There was ample room for improvement in it, goodness knows (and so do I), but in myself as a motor mechanic there was still more scope along lines identical. My ignorance of motors and their eccentric, tricky ways magnified every insignificant motor mole hill into a mountain that frequently took half a day—sometimes a whole night—to negotiate. I had to work hard, long hours to average 80 miles a day to Denver (2,000 miles, roughly), but half my energy went in buying experiences at a stiff price. The belt (an inch flat one) troubled me continually, and as the dry batteries on which my ignition depended—well, so as not hopelessly to prejudice whatever slight chance I may still have of admittance to the Land of Gold Pavements and Perfect Roads, I always endeavour never to think of dry batteries, the thought of them does so sorely tempt me to blaspheme.

I worked fourteen weeks in Denver. Autumn was fast slipping into winter when I steered again northward to intersect my guiding line, the Union Pacific Railroad, at Cheyenne. My excursion immediately developed into a race over mountain and desert with the dread season of storms and all that it connotes in the bleak spaces of the West.

The absence of decent roads, or of roads of any description for that matter, is a feature of the country districts in the States that cannot fail to impress itself on every cyclist or motorist. Even in the productive Platte Valley, which stretches for between 500 and 600 miles from Omaha to Denver at the foot of the Rocky Mountains, one finds only cart tracks, frequently unfenced; in fact, it would take no great effort of imagination to think of them as the original trails of the herds of buffalo which twenty years ago roamed the valley. Ample grants of money are made each year for the improvement and maintenance of the roads, but these sums find their way, in characteristic Yankee fashion, into the pockets of successful political wire pullers, road inspectors, and other officials, whose principal employment appears to be the careful manipulation of the public funds to their own advantage.

Steamboat Rocks, which stand out like the bows of gigantic liners, overlooking Echo Canyon, not far from the fertile Utah Valley.

Leaving Denver, riding by the foothills of the snow-capped Rockies, I was soon wallowing in mud. In passing a country cart a rut forced me to shave pretty closely to the vehicle. The irate Yankee yokel bawled an angry invitation to a fight. "I guess I'll take a fall out of yer," he yelled. But as I knew only too well that I should get plenty of these within the next three or four weeks, I merely opened the throttle a little wider, and left him gesticulating in the rear. Road hogs are not, it should be remembered, confined to motorists. As if to prepare me for the more adventurous part of my journey, that same evening I was pitched over a barbed wire gate. Out West wire gates, where

Across the American Continent on a Motor Cycle.—

there are any gates at all, are common. Usually, however, to make them visible at night, an empty sack is hung over the top wire. On this one the sack was absent. Bowling along merrily at a fifteen miles an hour pace, following a prarie trail that paralleled the railroad, and watching the perky, snappy little prairie dogs as they scampered to their holes, I did not notice the wire until too late to avoid a collision. A treble or quadruple somersault (in the excitement I lost count) landed me over the gate and into a rut. Result: Torn knickers, skinned knee, and a ripped front tyre cover.

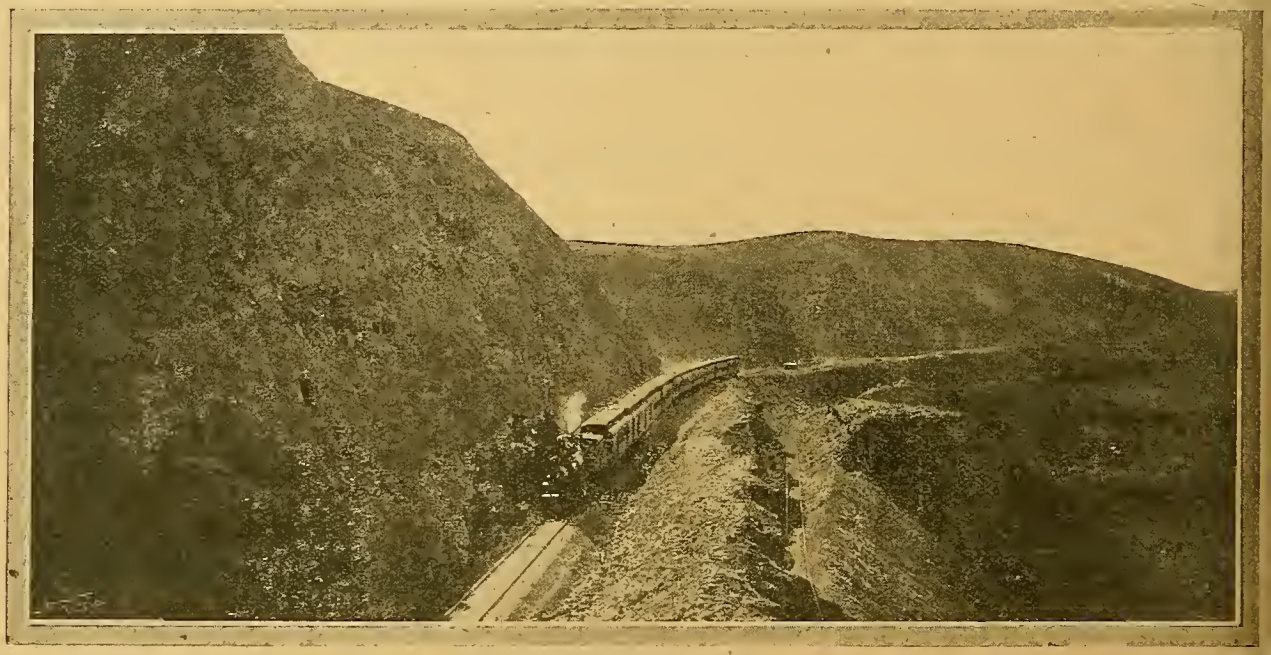
The damaged tyre forced me to put up for the night with the railway section man and his wife at a little siding called Dover. It is strange how in a long ride, where so much depends on the stability of one's machine, the mind becomes concentrated on it. Frequently in a fall, when I have felt myself gyrating through space, a thought has flashed through the mind, "What will be bent or broken on the motor this time?"—not "What sort of a rock shall I strike?"

The petrol supply was a constant worry, but of meals I soon became quite careless.

The brilliancy of the headlights on the American railway engines was remarkably illustrated at Dover. From Denver there is a steady up grade. The last twenty miles of line is perfectly straight, and for that distance the lights of the mail trains could be seen quite distinctly. It is no exaggeration to say that the clear, concentrated glare of the electric headlight, attached high on the funnel and reflected on the rails, enables the driver to see the track better at night than in the day time, provided, of course, he is not asleep.

A Choice of Two Routes.

At Cheyenne at noon next day I struck the Trans-Continental Railway line. Not so long ago this little town, now as safe for the stranger as any secluded English village, was a garrison town for the troops who guarded the mail coaches from the Indians of the Nebraskan plains. There are several famous battlefields in the neighbourhood, but, instead of relating stirring stories of the wars with the redskins, a townsman whom I met in the hotel preferred to talk of the irrigation schemes which are turning the Platte Valley into one of the finest agricultural areas in the world. Huge irrigation canals have wrought such wonders that vast areas which have practically no natural rainfall now produce more than districts that have, and always have had, a good one. Former arid wastes that were in sole possession of a few lean prairie dogs and jack rabbits are now studded with prosperous farm houses. There is not the slightest doubt that if any American were to relate in a London club one half of what has been accomplished by irrigation in Nebraska and Colorado his statements would be received with indulgent smiles and considerable dubiousness.



An "Overland Limited" out West.

There are two routes over the Rockies. One follows the romantic, glittering steel rails of the Harriman Railway; the other, a shorter but an utterly lonely trail, is by way of the telephone lines which here diverge from the railway. Opinion was divided as to which route was preferable. The most encouraging report from at least a dozen enquiries at Cheyenne was that both were bad—"both impassable for a motor cycle." A spin of a coin sent me by the telephone route. I have a notion that my usual ill-luck in games of chance once more operated in my disfavour. How many miles I played the part of the pushing donkey I cannot say. The Chinese in measuring distances discriminate between flat and mountainous country; a li on a plain is longer than a li in the mountains. Calculated Chinese fashion I must have walked at least 101 miles, although a British surveyor would probably credit me with no

Across the American Continent on a Motor Cycle.—

more than the last four miles to the summit. Frequently the trail, at best totally unsatisfactory, simply disappeared. The number of ridges to be scaled seemed interminable. The summit of each one (that had once promised to be the last) revealed another, and yet another, until I was convinced that mountaineering with a motor cycle was something more than a failure.

Some compensation was to be found in a glorious view from one of the ridges. To the east there was the Nebraska plain, intersected by a tiny streak which represented a great volume of water, the Platte River, as it wound its circuitous way to join the Mississippi, 600 miles farther east. To the south, along the range, but below the timber line, stately and majestic pine forests clothed the mountains, and from where I stood there was dimly audible the sag and sigh of the wind through these mighty timber fields.

Met One Person in a Whole Day's Ride.

About noon I met a waggoner—the only person I saw that day—who was carting winter provisions to an isolated ranch. As we lunched together he confided that in his younger days he had been a Chicago newspaper man. The gay life of Jack ashore had driven him from the Windy City to western ranching. He was still interested in the press.

"Struck the *Denver News?*" he asked me. I admitted that the red ink headings (red ink headings are a feature of the yellow press in the West) had drawn attention to the *News*.

"Well," said he, "one of those telephone wires belongs to the Hearst Syndicate papers. The *News* is one of them. The syndicate telephones news right across the continent, and the Hearst papers call this special line 'the longest leased wire,' but the opposition folk refer to it as 'the longest leased liar.'"

He was a gay, good-hearted, devil-may-care, highly educated fellow, typical of hundreds one meets in the Western States. No spectre of the future troubled him, and until all the saloons were closed (an unlikely happening) it was useless, he said, his returning to city work

Darkness had set in before I reached Laramie, the lonely little capital of Wyoming, the great cattle State. The boulder-strewn canyon track which led from the summit was fit for no vehicle yet invented, and the attempts I made to ride, slowly and gingerly, invariably ended in disaster. Once I was pitched thirty feet to the bottom of a gully. Fortunately, there were no rocks on the damp, spongy stream bed, and I escaped with nothing worse than a cut and bruised ankle. Had the machine followed me over the bank it would probably have been totally wrecked.

The Real West and the Typical Cowboys.

Nowadays the real West—everything typical of the old days—is on the "other side of the Rockies." Laramie, therefore, was my first city of the wilds. About its saloons one sees the typical cowboys, true sons of the prairie—tall, slouching, brown skinned fellows, coatless and vestless, their trousers held up by belts, and their rough shirts open at the neck. Wide brimmed felt hats topped off these breezy men of the open. Emphasised by a string of lurid oaths, one of them remarked that theirs was a careless, rollicking life. I didn't dispute the fact. Judging from their performances at Laramie, I should say their specialities were swearing and spitting. They may be crack shots with a Colt's; I saw no demonstration, but I can vouch for the fact that they can drown a fly in tobacco juice at from ten to twelve feet!

But Laramie is not only a rallying ground for the roughest type of ranch workers. It has been laid out and built with an eye to the future. Its broad streets run at right angles, and the jerry-built, ramshackle huts and saloons have given place to substantial buildings. Eight thousand is its population, yet it has a university that would do credit to any Eastern city. Not to be behind the times, a flourishing garage is very much in evidence!

(To be continued.)

One of the wonders of Nature. A remarkable rock on the Transcontinental route which has been aptly named "Natural Fort."

ROTARY ENGINES FOR MOTOR CYCLES.

THE above subject was brought to my mind as I was thinking of last year's events in the motor cycle world, and of the great success the Gnome engine has had in connection with flying machines. Most of us will remember the Barry revolving engine which was exhibited at the Stanley Show of four or five years ago, and some of us can recall the experimental Lamplough motor brought out shortly after.

It may be that these engines, like many good inventions, were before their time, but I think their non-success at the time was due more to the design than to the principle on which they worked. They both differed from the latest Gnome engine in many important points, although the main idea—to save weight and give a greater cooling surface—was the same. There is no doubt this type of engine can be made to work efficiently and give reliable running, and its suitability for motor cycle work will soon be tested.

A 5 h.p. Motor weighing 20 lbs.

If the weight can be brought down to about 4 lbs. per horse-power and still have the working parts as strong as is needful, then there is a good claim to be made for its adoption. If an engine could be made to weigh about 20 lbs. complete and give 3 to 5 h.p., the whole design of the motor cycle would undergo a great change. Frames, wheels, etc., could be built lighter, and this would make for longer tyre wear and more economical petrol consumption, which would mean less dead weight to carry in fuel and tank.

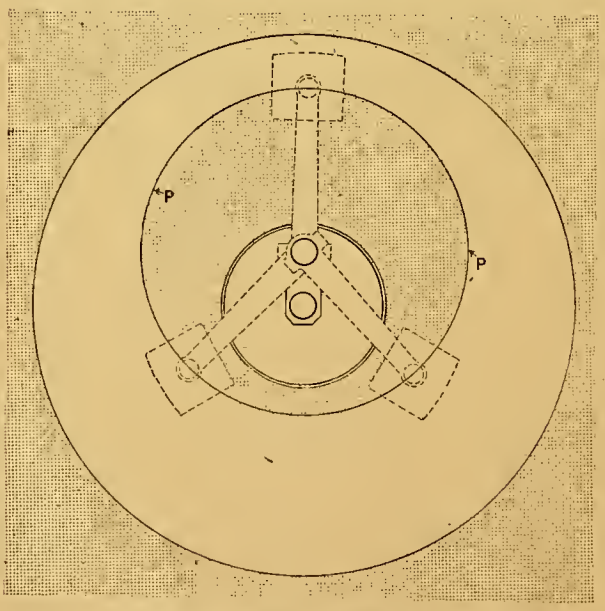


Fig. 1.—PP denotes the path described by the pistons of a rotary engine with fixed crank shaft.

What a splendid prospect, and all the more so, as the gate which leads to it has been opened by the makers of the Gnome engine, and it is now within our reach. A lightweight yet powerful motor is just as essential to the motor cyclist as it is to the aeroplanist, and it is because it has never been produced that the present-day design has been accepted, just as the motor-carist has had to accept the sliding gear—for want of something better. We are always moving forward, however, and no doubt some day the motor-carist will get his ideal gear and we our ideal engine.

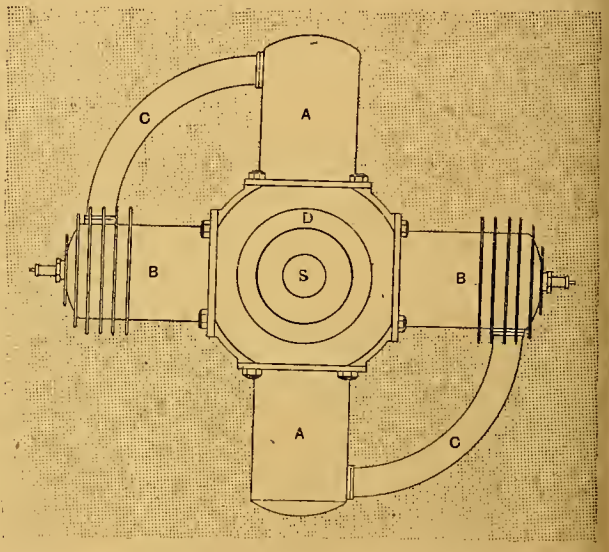


Fig. 2.—Diagram of an early type of rotary engine called the "Barry." AA, pumping cylinders; BB, working cylinders; CC, induction pipes; D, belt pulley; S, fixed crankshaft.

I do not say that the revolving cylinder engine is the ideal or even near it, but, in my humble opinion, it is as near to the internal combustion turbine as we shall ever get.

No matter how this question is regarded, we must get certain functions and conditions embodied in a turbine not at present in its steam prototype. That is, we must have means to draw in, compress, and expel the gases, and I think these operations, as performed by the movement of the piston or cylinder, are not likely to be superseded. Some petrol turbines have been designed on the lines of the Parsons, but they require another complete plant to compress the air, etc., and they cannot be cooled without a great deal of complication.

Rotary Engines for Motor Cycles.—

In the revolving cylinder type ot motor you have a far better balance of pistons and connecting rods than is possible in a stationary cylinder engine, because the pistons and rods revolve all the time at a gradually increasing and decreasing rate of speed, there being no sudden stopping and starting. This will be seen by glancing at fig. 1, which shows the course the pistons take during one revolution of the motor.

The Barry engine, which was exhibited at the Stanley of November, 1904, had two opposed working cylinders fitted on one crank chamber, and two opposed pumping cylinders, as shown in fig. 2. The lubrication caused the greatest difficulty then, though of course both the design and materials were not what are now available, and so everything was against it.

The Lamplough Rotating Engine.

The Lamplough was of the revolving type also, only more complicated and without the balancing advantages which the other had. It worked on the four-cycle principle, and was air cooled. Fig. 3 shows an end or valve view of the arrangement. A number of cylinders were clustered round a stationary shaft with the valves at one end. Every cylinder had a crankshaft of its own, which was geared to the main shaft by bevels. No particular advantage seems to be gained by this method, against which were the extra complication, extra cost of manufacture, and, I should think, noise made by the bevels. I do not think there were many engines made of this type, and nothing has been heard of them for some time.

Fig. 3.—Diagram of the Lamplough rotary engine. A, cylinder; B, valve; C, tappet levers; D, timing gear case; E, fixed crankshaft.

The Gnome Seven-cylindered Engine.

The Gnome engine is a third type that has been brought forward, and seems to be the only successful one. When first introduced most of the critics were against it on account of the oiling arrangements, which they did not think satisfactory. Others said there was no need for such a novel type of engine. Any difficulties which showed themselves have been overcome, and the one which the experts pounced upon as likely to be the most troublesome, namely, the lubrication, has proved to be non-existent. Everyone who takes an interest in following the progress of the aeroplane knows how successful Mr. Farman and others have been with the Gnome, so there is no need to say anything further here. It has always been made with seven cylinders, but for the bigger powers fourteen cylinders are to be tried. Of course, this would mean excessive complication when only 3 or 4 h.p. was required, so I think four cylinders would be the limit for motor cycles.

All the trunk piston rods in the Gnome drive on to a one-throw crankshaft. The mixture is fed through this shaft, which is hollow, into the crank chamber, and passes through inlet valves fitted in the heads of the pistons into the combustion chambers. The balancing of the valves has been the greatest trouble the manufacturers have experienced, and, although they have succeeded in the aeroplane motor, I think a lot of experimenting will be required before they can say the same should they start building motor cycle engines. The inlet valves, I should say, will be the most difficult problem to solve, for the motor cycle engine would have to run at ever varying speeds, whereas in the aeroplane model it is practically always running at one speed, and that the highest attainable.

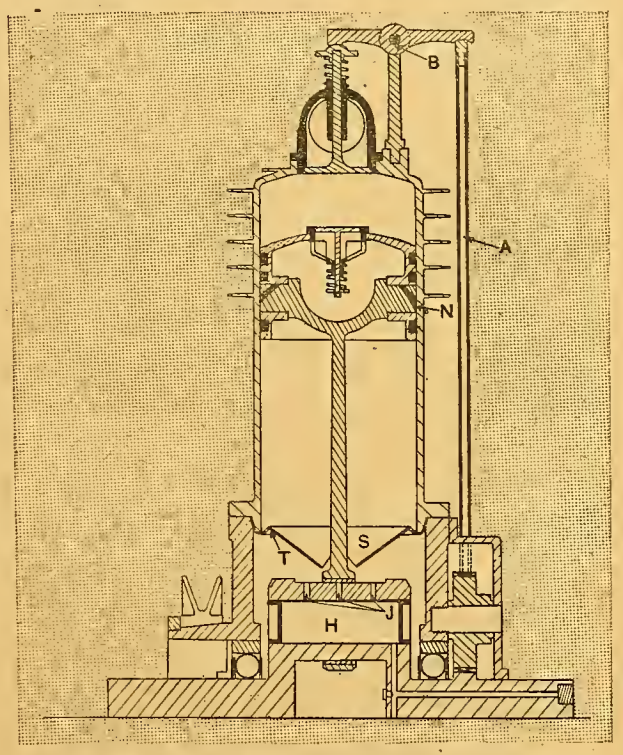


Fig. 4.—Suggested methods of balancing the exhaust valves and lubricating a rotary cylinder engine for motor cycles. A, tappet rod; B, rocking lever; H, oil reservoir in fixed hollow crank pin; J, oilways in crank pin; N, oil lead for gudgeon pin; S, baffle plate for directing oil; T, oil gutter for lubricatiug piston.

In fig. 4 a suggested method is shown how the exhaust valves might be balanced. It is to have the rod A equal in weight to the exhaust valve and its spring. When the centrifugal force becomes sufficiently strong to take effect the rod A will try to tear itself away from the centre, and so will the exhaust valve. Now the lever B will have the weight of the rod at one end and the weight of the valve at the other at the moment the valve is lifted from its seating, so that one will balance the other, while the strength of the spring will always be practically constant, and so will always be able to close the exhaust valve.

With the inlet valves the matter is much more difficult, so I will not do more than roughly indicate how it might be arranged. One way is to have all moving portions made as light as possible, and use a comparatively strong spring, which could hold its own against the centrifugal force. But this is not very

Rotary Engines for Motor Cycles.—

satisfactory, for if it were made strong enough to act well at the highest speed it would allow the valve a very poor opening when the engine was running slowly. Perhaps some system of balance weights, like what has been suggested for the exhaust valve, would be better, but, as I have already said, some research work will be necessary at this point.

Lubrication of Rotating Cylinder Engines.

The next point is the lubrication. In the Gnome engine this is done by allowing the oil to enter the

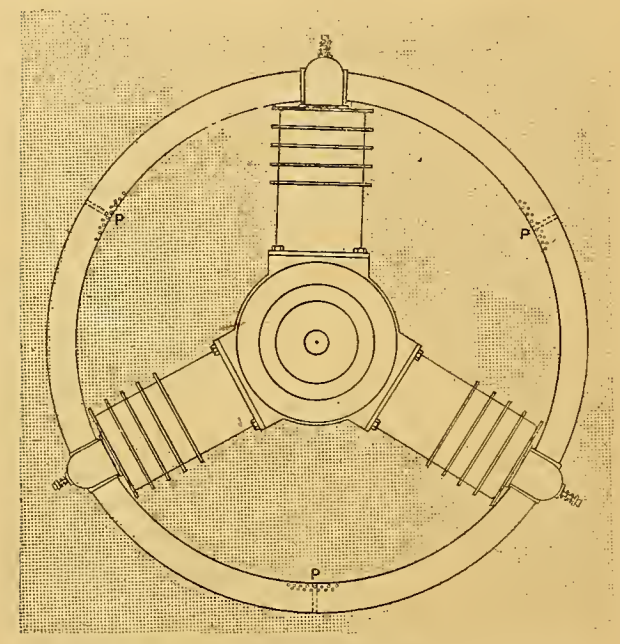


Fig. 5.—Proposed arrangement of exhaust piping on three-cylindered rotary engine. The exhaust gases are directed inwards at P, the centrifugal force keeping the oil on the outer periphery of the piping.

revolving crank chamber, where it gets flung about by the moving parts. But this method would hardly do for motor cycles, because it causes a great amount of over-lubrication when the motor is started, causing very dirty exhaust, and the oil spatters over eve thing near at hand. Some way of regulating t quantity of oil is necessary, and a suggested way shown in fig. 4. The oil is forced through t hollow crankshaft into the space in shaft H. Th chamber acts as a reservoir, and has leads J runni from it to the big ends of the connecting rods (in t sketch the leads are shown vertical, but this is only f the sake of clearness). The oil is thrown off the rods by centrifugal force on to the shields S, and t same force now causes the oil to run up these shiel into the gutter T. This gutter has a number small holes bored in it, through which the oil forced against the walls of the cylinders. The sm ends of the connecting rods take their supply throu the holes N from the cylinder walls. How th system would work in practice I do not know, b there is nothing wrong with it in theory, and it is accordance with the best principles. The idea turning the hollow crank pin into an oil reservoir not a bad one, for the crank is stationary, and the would be fed by gravity. A relief cock would, course, be necessary to run off the surplus oil.

The Question of a Silencer.

The only other point to discuss at present is t question of how to get a silencer fitted. This wou also have to collect any oil which found its way pa the exhaust valve, and might get on the machine or i rider. I think the best way would be to have a pi running between the exhaust valves, as in fig. with partitions, so that one exhaust would not inte fere with the other.

There are many other small but, nevertheles important points which would have to be gone in before this type of engine could take its place amo those suitable for motor cycles, but I think it w pay our engineers to experiment with it rather th with the two-cycle kind, as it has as many good poir and fewer bad ones, and most of its bad points c be eliminated with careful design and manufactu the success of its chief exponent, the Gnome, provi such to be the case. J. M.

ALLEGED INGENIOUS MOTOR CYCLE FRAUD.

AT the Guildhall Police Court on Monday last John Brown, 28, described as a ticket writer, who is awaiting trial upon a charge of obtaining goods by false pretences, was brought up before Mr. Alderman Johnston on an order issued by the Home Secretary in relation to a fraud and forgery alleged to have been committed by him in the City. The facts, which were practically admitted by the accused, revealed a depth of cunning and ability exercised in a somewhat original direction. In December last Brown, in the name of "G. Horne," advertised a motor cycle for sale, and received from John Edward Grace, a works foreman, of Warrington, an offer of £20. The prisoner—who had his letters sent to a confectioner's shop in Gray's Inn Road—agreed to this, and Grace sent him a post office order for £20 (in favour, of course, of "G. Horne"), payable in seven days, to allow of a trial of the machine. Grace never received the motor cycle, and consequently stopped payment of the order.

At No. 4b, Broad Street, Mr. George Horne carri on business in photographic apparatus, and December 20th he received an order signed J. E. Gra for two cameras and a lens. The value of the goo was £20, and the post office order sent by Grace "G. Horne" (the prisoner) accompanied the lett There was a request that the goods might be sent the railway station at Warrington.

Mr. Horne, believing the letter was a genuine on despatched the goods, but on presenting the post offi order he found that payment had been stopped by t remitter. It was shown that the prisoner communicate with the stationmaster at Warrington, and had t goods sent on to Euston, where he called for ther He was charged with obtaining them by false pretenc by Mr. Horne, and forging Grace's signature.

The Prisoner: I have made a full statement and se it to Scotland Yard, so that the property can recovered.

Alderman Johnston committed him for trial.

OCCASIONAL COMMENTS.

BY "IXION."

Inspection Lamps.

Acetylene dies hard, but electric lamps are in use on an increasing number of singles and on many passenger machines Their users may be grateful for a tip which facilitates inspection work at night. A couple of yards of flex with an adapter at each end is a very desirable accessory when an electric lamp is already in use. One bulb is removed from the lamp and inserted in one adapter on the flex; the other adapter is slipped into the lamp socket, and a good light is at once available for night repairs, without the need of carrying a fragile article in the toolkit. I owe this tip to a lady driver.

T.T. Machines for Touring Purposes.

I agree with practically all that "T. T. T." said in the issue of February 28th as to the general suitability of semi-racing machines for ordinary all-the-year-round roadwork, but desire to mention two drawbacks which he has omitted. One is that the frame of a T.T. machine is excessively cramped for riders of any stature surpassing the minimum, and tall men will not like the crouching attitude which is compulsory, unless the saddle is placed so far backwards that the carrier ceases to be available for a touring kit; the other is that a pair of spring forks are a desirable adjunct when the race is over. Small and medium-sized riders of some experience will be well suited with a T.T. machine if they purchase a pair of roadster forks as a spare.

Chain or Belt.

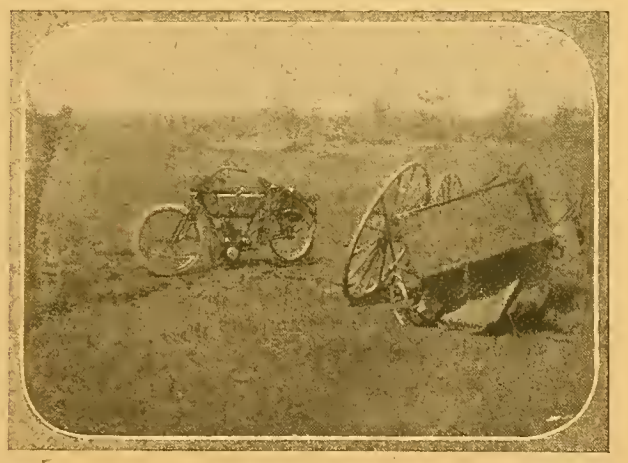
This ancient controversy is again in a position of stirabout, thanks to the partial recantation of the Hendee Company, who are now marketing in America a flat-belt 4 h.p. single, with a gear-reducing pulley, enabling very large pulleys to be fitted with a 1½in. flat belt. Readers may remember that "Transatlantic" recently stated in our columns that the greater popularity of the chain drive in the United States was chiefly ascribable to the inferior character of the motor cycle belts produced in that country, and it will be interesting to watch whether the belt secures the supremacy there as it has done over here. Further developments may be expected in the near furture in England. I hear several users of geared pulleys on lightweights have secured abnormal lives from sample belts, and that one or two designers of 3½ h.p. machines are considering experiments with large engine pulleys and reducing gears. "I hae ma doots" about the flat belt. It may be mechanical as compared with the wedging action of the V belt, which has to be "unwedged" forcibly as it quits the engine pulley, but we have yet to devise a simple and reliable fastener for the flat belt; and we must have a simple and reliable one before we can safely return to this type of transmission, even in company with a design that reduces joint troubles.

Amulree Hill and the Six Days.

I am still a trifle perturbed about the inclusion of the Kenmore side of Amulree Hill in the A.C.U. Six Days' Trial. It is true that several crack riders have made clean ascents of it with well-tuned machines under good conditions, but I doubt if a duffer would get up once in ten tries. even if his machine were in perfect order and the road and wind favourable. It is quite possible that before the competitors get so far north many engines will be a little below par, while we know how unreliable Scottish winds and weather are, even in July. I should strongly recommend amateur aspirants to put in some stiff practice on the worst and twistiest hills they can find, while riders of heavy "doddery" machines will do well to use a variable gear for this particular trial. While on the subject, I hope the route committee will vary the south-western portion a little, both in the interests of severity and scenery. The suggestion to include Cheddar Gorge is excellent.

Auxiliary Exhaust Releases.

I am naturally much interested in the adoption of the old racing idea on touring machines, by drilling the lower walls of the cylinder to afford additional paths of egress for the burnt gases. Incidentally I chortle at the growing unanimity with which the magneto is being shifted from its old muddy and back-aching position to a safer and more accessible niche, as long recommended in this column. But I have a question for the designer of the Premier which I should like to have fully answered, viz., what becomes of the oil which must be blown out through the holes drilled in his cylinder? He knows, of course, but as yet I do not, and his explanation will be interesting. From riding racing machines with the Premier holes minus the Premier cover I am aware that oceans of oil leave the cylinder *viâ* these orifices. I presume that when an outside pocket and cover are added some of the oil will drain back to the foot of the pocket, and possibly return to the cylinder; the rest will be sprayed up towards the top of the pocket (*cp.* sketch on page 168), meet the gases travelling out past the valve, and be hurled down the pipe into the silencer. I should imagine that the new engine would be a trifle extravagant in lubricating oil, and that the holes in the baffle-plates of the silencer will become sooted unless they receive more regular attention than those of a normal machine. It would be interesting to hear an authoritative description of these details of its behaviour from the men who are testing it.



"Cause and effect."
(From a photograph kindly sent by Mr. D. Skinner, jun., Queensland.)

Proposed Design for a Two-stroke Engine.

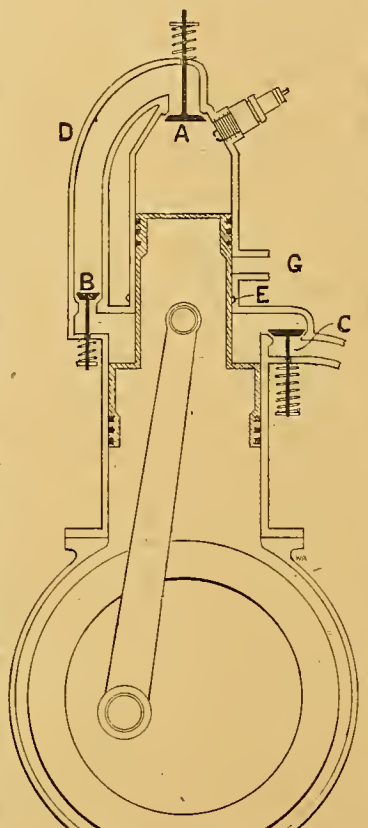
By H. W.

IN the following proposed design for a two-stroke engine the cylinder has two diameters, the lower half containing twice the cubical space of the top. The piston also is so made that when at the top of its stroke it completely fills the lower enlarged portion of the cylinder, and only leaves the compression space in the top half. There is a pipe D communicating between the lower and upper half and containing the valves A and B. The exhaust port is at G and the inlet valve at C.

The Cycle of Operations.

On the down stroke of the piston the inlet valve C is caused to open by the vacuum created, owing to the space occupied by the top half of the piston being of less diameter than the lower, and the lower cylinder is filled with mixture from the carburetter.

When the piston starts to ascend inlet valve C closes, and the mixture is forced through the valves B and A to the top portion of the cylinder *viâ* the pipe D. On the completion of the up stroke, owing to the pressure in pipe D and compression space of the engine being the same, valve A will be closed by the action of its spring. The mixture is then fired, and drives the piston down until it uncovers the exhaust port G, when part of the expended charge escapes. The pressure inside the top cylinder then falling, valve A is forced open, and the compressed mixture in the pipe D expels the remaining burnt gases. The space between the valves A and B is such that it contains sufficient mixture under compression to fill the top or working half of the cylinder and the pipe D at atmospheric pressure.



A suggested design for a two-stroke engine.
A B. Non-return valves.
C. Inlet valve.
D. Gas transfer pipe.
E. Lubricating groove.
G. Exhaust port.

During the down stroke the lower half of th cylinder has again filled as before explained, and th cycle is repeated.

The valve B serves a double purpose. It pre vents the mixture in the pipe D returnin to the lower portion of the cylinder o the down stroke, and, owing to th strength of its spring, it prevents th mixture in the lower half ascending unt the piston has covered the exhaust po G on its upstroke.

Lubrication of Connecting-rod an Pistons.

The lower part of the piston and th bearings of the connecting rod, etc depend on splash lubrication, but th top half of the cylinder has a groove ci right round it at E between the exhau port G and where it is enlarged. Th groove communicates with a pump c lubricator, which keeps it filled with oi so as to lubricate the top half of th piston.

An engine such as this should prov very flexible, as, owing to the charg being drawn in at the cool end of th cylinder and forced into the workin part, it would always receive a fu charge of gas, there being no residue c burnt gas to reduce the vacuum on th suction stroke.

Some other advantages of this desig are that there is no moving exhaust valv spring, guide, etc., and, should a back fire occur, it would be almost impossib for it to reach the carburetter, owing t there being three valves to pass, whic would all tend to close under the forc of the explosion; at the same time ther is always a free path for the gas to driv the piston down and escape through th exhaust port.

APPLICATION FOR A SPEED LIMIT AT PEMBROKE.

The Pembroke Town Council sought to enforce a ten mile speed limit under the Motor Car Act, 1903, and on the 25th ult. Mr. Marshall, an inspector under the Local Government Board, held an inquiry into the matter. The application was opposed by Mr. Deane, on behalf of the Royal Automobile Club and the Motor Union. The Mayor, Town Clerk, and several councillors supported the speed limit, on the ground that some of the streets were very narrow and crooked, and the point was emphasised that many dockyard men, by reason of their occupation, are deaf, and, therefore, need the protection of a speed limit. On the other hand expert motorists such as Colonel Mirehouse, of Angle, pointed out that the limit sought to be imposed is less than that of an ordinary bicycle, while a motor, with ordinary care, is as safe at thirty miles as at ten. Captain Mundy, dockyard superintendent, said he motored a great deal in the town and vicinity, and had many motorists who visited him, and he had never seen the slightest danger. A town councillo said he voted once for the ten mile limit, but he ha changed his mind since he bought a car and found ho perfectly the machine was under control. The inspecto took a note of the evidence, and will report in du course.

M.C.C. JARROTT CUP COMPETITION.

Mr. P. H. Trotman, a member of the club, ha offered a special prize for the best performance of rider of a lightweight machine in the London-Land End-London run at Easter. Machines with engine not exceeding 340 cc. are eligible, but there must be minimum of six such machines entered.

This should encourage riders of this type of machin to enter for the event, which is certainly a good tes and an enjoyable one.

Intending competitors should note that entries clos to-day week.

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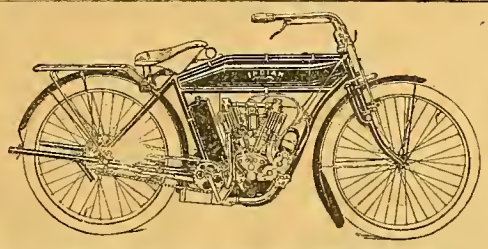

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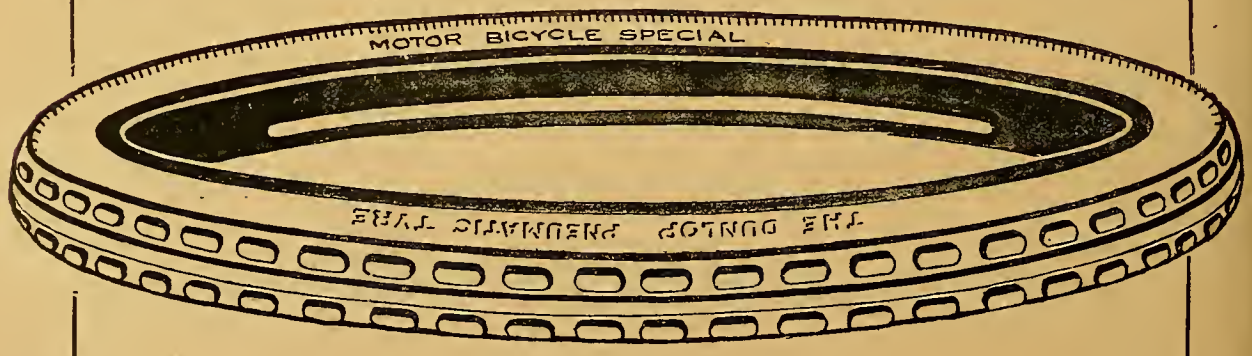

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Newport (Mon.) and District M.C.C.

A general meeting will be held this evening (Monday) at Central Chambers at eight o'clock.

Leicester and District M.C.C.

Another general meeting is to be held on Wednesday next at the Stag and Pheasant Hotel at 8.30 p.m. All local motor cyclists are invited.

Norwich and District M.C.C.

The first annual dinner was held under the presidency of Mr. Bernard Thorn, at the Bell Hotel, Norwich, and proved most successful. There was a good attendance.

On Easter Monday a cup presented by Mr. Thorn, the president, will be competed for in a reliability trial.

Lancashire M.C.C.

During 1910 fortnightly club runs will be held in addition to the usual competitions. A party will be formed to attend the meet of Northern motor cyclists at Richmond, Yorkshire, on Good Friday. The competitions to be held during the year will include the annual hill-climb for the Harold Eccles cup, a petrol consumption trial, and a reliability trial.

Derby Motor Cyclists to form a Club.

Arrangements have been made for a meeting to take place at the Carlton Bar, Osmaston Road, Derby, on March 9th, at eight o'clock, with a view to starting a motor cycle club for Derby and district. Motor cyclists who are interested, and cannot attend the meeting, should send a postcard to the secretary, Carlton Bar, Osmaston Road, Derby.

Southampton and District M.C.

A general meeting will be held at headquarters, The Cowherds (Golf Room), the Avenue, Southampton, on Wednesday next, 9th inst., at 8 p.m., when the following business will be transacted: Election of officers, fixing the date of the opening run, discussion of regulations for the "Oakley" Cup Competition, etc. Motorists, whether members or not, are cordially invited. The hon. sec. is Mr. H. Percy Young, Dunelm, 87, Shirley Park Road, Southampton.

Sutton Coldfield A.C.

The A.G.M. took place on the 25th ult. The balance-sheet and general report was discussed and passed as satisfactory. Seven new members were elected. The first committee meeting of 1910 took place on Friday last, when the principal competitions were decided upon. These include the annual reliability trial for silver challenge cup and gold and silver medals, petrol consumption test, and annual hill-climb at Coalport.

It is also hoped to obtain permission to hold speed trials for T.T. machines and touring mounts on a private road in the district which should prove the event of the year.

An additional hill-climb is also proposed, to be run off on a straight hill on the "knock out" principle, two riders being despatched together and the winner of each heat to compete in the semi-finals and finals.

Leeds M.C.C.

The annual dinner and presentation of prizes of the above club on the 25th ult. at headquarters was a very conspicuous success, about fifty members being present, whilst numerous delegates from the other motor cycle clubs in the district also attended. The president, Mr. Rowland Winn, was in the chair. The usual toasts and responses were made, and a first-rate musical programme followed the dinner. Dr. Norman Hughes (president of the York County M.C.C.), in the course of a neat and well-chosen speech, made special mention of the need for every motor cyclist to join a club and thus identify himself with any movement made by the different associations to improve the lot of the motor cyclist. He strongly urged the various clubs to join hands, as he assured the members that union is strength, and success can only be attained through combined effort. Other speakers included the president (Mr. Winn), Mr. J. R Kelly, Mr. A. Johnson (president Bradford M.C.C.), Mr. J. Mackay (Harrogate M.C.C.), Mr. H. Wilkinson (York County M.C.C.), Mr. H. Broadbent, Mr. J. Whittle, and Mr. F. C. Bagshaw. The hon. sec. (Mr. A. Matthews) read his report, which was enthusiastically received, and told those present that the club is in a very sound financial condition, and promised the members a real pleasant and successful season in 1910 if they would only give their officials and committee their hearty and unselfish support. The duties of toast master were admirably performed by Mr. F. O. Langton.

Evenings are drawing out! To-day's lighting up time is 6.43 p.m. (Greenwich).

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Curious Loss of Compression.

I purchased a second-hand 1907 Minerva recently. The compression bore the vendor's twelve stones for over a minute. I went out for a three miles trial, and when I returned I could push the machine along with the exhaust valve down. Could you explain?—H. E. A.

We can only suggest that the piston ring slots are in line, or one of the valves prevented from closing properly for some reason, or a crack has developed in the cylinder casting, which cannot be observed when cold.

A Backfire into the Carburetter.

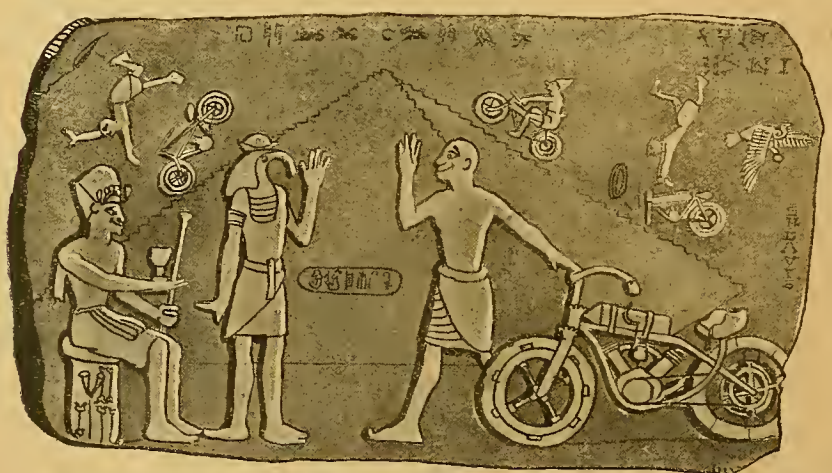
I have altered the surface carburetter of an old pattern Rex motor bicycle to a spray (B. and B.) with splendid results, but returning from a run the other day I had the carburetter catch fire, presumably through the inlet valve. I was fortunate enough to put it out before any serious damage occurred. Would it prevent such a thing occurring again if I inserted a piece of brass tube a tight fit in the inlet pipe with a piece of gauze soldered in it, or would you recommend two pieces of gauze? The inlet pipe is about 6in. in length.—E. M.

There is no doubt that two or three layers of gauze would stop the possibility of a back fire, but it would obstruct the flow of gas, *i.e.*, reduce the effective area of the induction pipe. The difficulty can probably be overcome in a more simple way by fitting a stronger inlet valve spring and reducing the opening of the valve.

Balance of Engine.

I am totally at a loss to find why I cannot average more than twenty miles per hour with my 3 h.p. machine. I have tried various adjustments of the trembler coil without success; carburetter set to combination given by the Amac Co. The engine gives full power at slow speeds, but over twenty miles per hour does not seem to give anything like the power it ought for an engine 79 × 79 mm. The engine is geared 4 to 1; if I gear lower I travel slower, as the engine only attains a certain limited speed. On going downhill the machine simply overruns the engine, and the vibration is very great. Do you think if I had the engine properly balanced I should get better results?—G. A.

The failure of the engine to attain a high rate of revolution is, we should say, due to faulty balancing of the engine or incorrect timing of the valves. You give very few details concerning the adjustments of the vital parts, but we should certainly have the balance tested by a firm of competent engineers, and also the timing. First of all, it might be advisable to communicate with the makers, as they may be able to help you.



Another reproduction of a wall carving, time of Rameses II. A competition winner is receiving a cup from Rameses in person; the god Thoth, supervisor of times, is introducing the winner. Local club members may be seen practising, and, incidentally, this is undoubted proof of the real use of the Pyramids, which has hitherto been the subject of much speculation.

Repairing an Accumulator.

I have two 12 amp. accumulators and the paste in the positive plates has fallen out. The negatives are quite good. How can I refill them, and the nature of the stuff?—A. S.

First of all you had better buy an accumulator repair outfit for taking apart the accumulator case and replacing it. The paste in the positive plate is usually composed of lead peroxide, which must be forced into the orifices of the plate by means of a roller and pressure. This operation is not at all the job for a novice to carry out, and we should strongly advise you to send the accumulator away to the makers so as to ensure the refilling being satisfactorily done, or, if you particularly wish to repair your own accumulator, a local firm of electricians would fill the plates for you.

Fitting a Two-speed Gear and Free Engine.

I have a 1906 motor cycle, 3½ h.p. single cylinder and accumulator ignition, gear 4½ to 1. It is rather bad for starting, but when once going runs splendidly, and will climb almost any hill round here without assistance from the pedals. I have also recently bought a sidecar (Chater-Lea rigid) which I wish to use with it, but up to the present have not been able to get much satisfaction from it, as the engine jibs at any hill steeper than about 1 in 18, and in addition is exceedingly difficult to start, even when the cylinder has been warmed; so much so, that I feel I should like to have it converted to a free engine and two-speed gear. Would this get over the difficulty? (1.) Is a single-cylinder engine suitable for conversion to a free engine? (2.) Are two-speed gears reliable if properly attended to?—L. B. (Heywood).

Naturally with a sidecar attached the machine has a difficulty in climbing hills without the aid of a two-speed gear, especially if you are using a 4½ to 1 gear with the sidecar attachment. The starting difficulty can probably be overcome by reducing the main air inlet. This is usually necessary during cold weather, and if the carburetter is a Longuemare it is better to fit a smaller air funnel. A two-speed gear and free engine will facilitate starting of the vehicle, but the engine itself will be no easier to start. (1.) Yes, a single-cylinder is suitable for conversion. (2.) Yes.

Heated Crank Case

Can you tell me why the crank case of my 3½ h.p. single-cylinder magneto motor cycle gets so hot that I cannot hold my hand on it? The compression seems all right when the engine is hot. I have asked several riders for the probable cause, but they do not seem to understand it. The crank case gets hot almost as soon as the cylinder itself.—T. L. W.

You do not state if the running of your engine is in any way affected by the crank case getting hot. Personally, we should be inclined to think that the crank case merely gets hot through the heat being conducted from the cylinder, but if the piston rings are at all worn this will be quite sufficient to account for the trouble.

Increasing the Comfort of Riding.

I have suffered from vibration in the past, and although I have had spring forks fitted to my machine it makes very little difference to the vibration from the handles, they seem too stiff. What is the remedy, and is a bucket seat free from vibration?—G.L.

Probably you ride with the tyres pumped up too hard. If you use long springy handle-bars, and the springs of the front fork are properly proportioned to your weight, this is all that can be done to the forepart of the machine. At the rear end, fit one of the new pattern spring saddles of large size, and if more comfort is desired, use a spring seat-pillar or shock absorbing device, such as are advertised extensively. A bucket seat is very comfortable, but it is not so easy to mount and dismount with one of these on a motor bicycle

Weather-proofing a Motor Cycle.

Re the Wilkinson T.A.C.: (1.) Would it be possible to enclose the engine in a bonnet, and have a fan at the farther end (rear), worked from engine-shaft, to draw air in from front and expel it behind? (2.) Would one have to put carburetter outside of bonnet or not? (N.B.—The carburetter is fixed behind engine, near cylinder.) Also how would this affect carburation? I understand that the carburetter needs the heat from cylinders to facilitate vaporisation, but as fan would draw hot air from cylinders past it, I take it that this would be sufficient for vaporisation. Also as to air for mixture, the carburetter would get a good supply by this means of a forced draught. I am making this enquiry with a view to enclosing front part of machine altogether to form a dashboard and wind screen. If once the cooling trouble were overcome, I could totally enclose machine, making it dust, rain, and mud-proof, thus adding extra protection to rider. (3.) At what speed would the fan have to run in relation to engine or flywheel speed?—R. H. G.

(1.) The question of fitting a bonnet or cover over the engine will be answered best by the makers. Doubtless if a bonnet be fitted a fan will be required to keep the engine cool. In its finished state the machine is provided with wind scoops to assist the cooling. (2.) The best plan will be to leave the carburetter where it is. There is no reason why it should not work well here. The makers generally know best in these respects. (3.) If the makers advise you to fit a fan, let it run about twice the engine speed.

READERS' REPLIES.

A Loss of Power.

In reading *The Motor Cycle* of February 14th, I see your answer to "P. H.'s" question. Might not a clogged silencer be the cause?—G. L. V. BAKER.

Repairing Leaky Tanks.

In reply to your enquirer, "H. C. A.," as to the best way to repair a leaky tank, perhaps my experience may help him. Halfway up Llanberis Pass I found the petrol in my tricar tank leaking very badly, the petrol cock having come unsoldered. In motoring it is not a case of what is the correct thing for a repair, but what have you got with you that will do. Among what my non-motoring friends call my "rubbish heap" I found about 12in. of light rubber tubing. In this I threaded, with the help of a hairpin, a piece of tape, and wrapped it tightly round the petrol cock. It made a perfect joint, so perfect that I was loth to remove it, which I did, however, after over three months. I found the rubber had practically formed a solid mass with the petrol cock and the tank. I hope the tip will be of service to others in a similar plight. By the way, I have got a grumble against *The Motor Cycle*. It should be published on a Saturday. I come home on Monday determined to do some work, take the cylinder off, and remove the carbon deposit, grind in the valves, etc., but the first thing that catches my eye is the "blue cover." Result—No work done till I have read it from cover to cover. Now, if it were published on Saturday, I should have all Sunday to read it. There always is a fly in the amber.—A. F. P.

"H. C. A.'s" enquiry in a recent issue in regard to a leak at the junction of the petrol cock with the tank, and your comment on the question of soldering, reminds me of the many occasions on which I have found Tinol a boon and a blessing. Some months ago I purchased a small tin of this material and one of the pocket blow lamps supplied with it, and I have often wondered the makers have not given it more publicity among motor cyclists. Little troubles constantly crop up, as every motorist knows, which an expert with solder can readily put right. The difficulty is the manipulation of the solder, whereas with Tinol I find that practically every soldering job is well within my capacity as a "very amateur" mechanic.—ALLEN FRANCKLIN.

A four-cylinder Wilkinson T.A.C. undergoing a private test on Brooklands Track. The acceleration powers of this machine greatly impress onlookers.

A PUZZLE OR A POSER?

By "IXION."

I WONDER how many readers have ever laid the palm of their hands against the extra air holes of the carburetter with the engine running fairly fast either on the stand or on the road. Of those who have done so I wonder how many have withdrawn their hand and found it bone dry, and, if so, by what methods they obviated the blowing back of a spray of wet petrol, which is almost universally found at this point on a motor cycle. For some time past I have been keenly interested in this phenomenon, and should be more interested if I could discover a machine on which it does not occur, and learn how it has been obviated, for after applying this rough and ready test to several hundred machines at different times, I have yet to find a single instance in which no petrol spray at all was blown back.

A.O.I.V. Engines the Worst Sinners.

The amount and wetness of the spray varies. On a rare machine here and there (generally with an m.o.i.v. engine) it is scarcely perceptible. On the majority, and especially with a.o.i.v. engines, it is very marked indeed. At a rough guess I should estimate that in many instances the spray is so constant and so wet as to account for a quarter of every gallon of petrol that is fed through the carburetter, *i.e.*, twenty-five per cent., and that in the best instances tested it would account for between five and ten per cent. at least of the total consumption. I am consumed with curiosity to know whether the machines which in obscure consumption trials register two hundred miles or so per gallon of petrol are devoid of this spraying or not, for up to date I have never had the opportunity of making this particular test. Here is a chance to create new records.

The Motion of the Gases.

I am no technical expert—prolonged road experience with many breeds of motor is my sole standing as a publicist—and consequently I am rather timid about opening what I hope may be a very useful and interesting discussion on this rather novel point. One thing is obvious. Most riders probably imagine that any motion existing in the inlet pipe is invariably in one direction, *i.e.*, away from the carburetter and towards the inlet valve. But wherever this spraying exists there is also another motion away from the inlet valve towards the carburetter. From the frequency of my tests this backward motion is all but universal. A second point is also tolerably obvious. This motion is practically constant. Whenever I have felt the spray it has seemed to be all but uninterrupted—as constant as the spraying of a watering can.

We know that when a single-cylinder engine is running at 1,000 r.p.m. five hundred charges of gas rush from the carburetter towards the inlet valve in each period of sixty seconds. It follows that within these five hundred forward rushes are sandwiched nearly as many backward rushes; otherwise the spraying sensation could not be constant. I have very little hesitation in saying that a backward rush immediately succeeds every forward rush, and that the backward rush is caused by the shutting of the inlet valve. Gas is travelling enginewards at high velocity when the inlet valve is open. There is nothing to arrest it for a fraction of a second after the inlet valve has shut. Then the rushing gases in the van collide with the shut valve; those in the middle of the pipe butt up against those which are crowded round the shut valve, bounce off, and are knocked roughly backwards out through the extra air orifices. It is easy to reckon that twenty-five per cent., anyway, of the atomised petrol may be wasted here. If the blow-back were as powerful as the drag of the piston when the valve is open, fifty per cent. would be wasted without allowing for the inlet valve being shut three times longer than it is open; but there is a good deal of friction in this sudden reversal of motion, and twenty-five per cent. is possibly as much as is ever wasted by this cause acting singly. Well, my puzzle, or poser, for readers is whether it is possible to stop this wastage, and, if so, how?

The Automatic Air Valve.

I have often noticed in car work that the fitting of a very crude type of automatic inlet valve, self-closing by a light spring, enormously reduces petrol consumption. It is generally supposed that the automatic valve reduces consumption by simply proportioning the feed of air more accurately than can be done by hand. I have always doubted that explanation in view of the clumsiness and inertia of the valves so often used. But the automatic air valve has a marked effect on the phenomenon now under consideration. The first backward rush shuts it, and shuts it tight. The backward rushing gas cannot escape, and for a millionth of a second or so is kept bumping to and fro in a closed chamber. By turning corners and so forth it could no doubt discover a fresh means of egress, *e.g.*, if it turned down through the spraying chamber and out through the bottom air orifices, at which very often a similar spray of less volume may be detected. Here a similar automatic air valve acting as a non-return valve upon the backward spray might be situated. No doubt some ingenuity would be required to design a carburetter provided with non-return valves at all air inlets, for if made as crudely as I have described it would give very rich mixtures at low speeds; but I am inclined to speculate that a device of this sort might be evolved which would show far more economical consumption than anything in use on motor cycles at the present time. The automatic air valve is almost unknown on motor cycle carburetters to-day; this spraying back is almost

A Puzzle or a Poser?

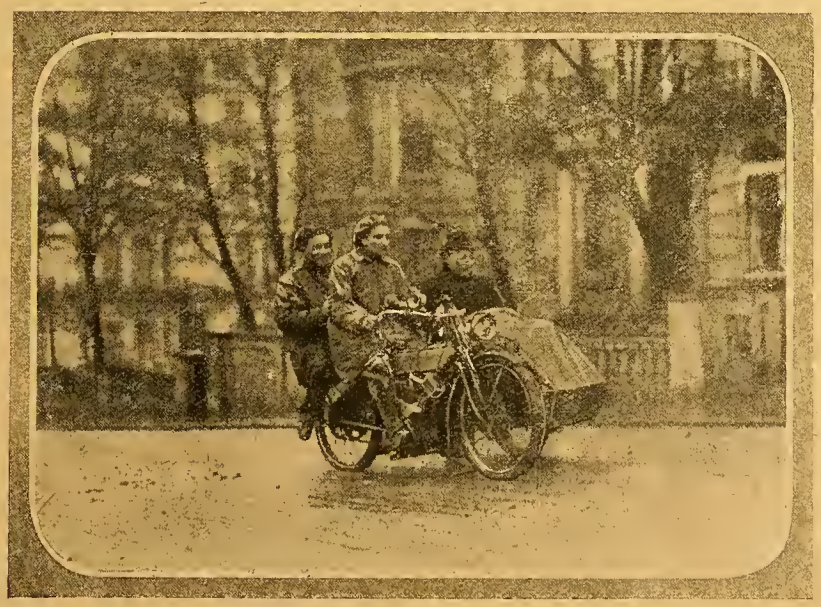
universal, and the mere presence of the spray points to a failure to get homogeneous, well-atomised mixture. The abolition of all waste and the securing of better atomisation and mixing may lead to efficiency as yet undreamt of. Extra complication may be imported. For instance, I fancy two jets with separate air valves of varying spring tension would be requisite, whatever else happens, but complications, if well made, are not radically and necessarily bad.

Mr. Mervyn O'Gorman always used to say we should all come to a forced feed of the mixture by a special pump some day, and rumour has it that some of the recent eighty-mile-an-hour bats by small car chassis on Brooklands are not innocent of forced feed. But forced feed *per se* might only accentuate what I call "spray wastage." It will all depend on strength and application of the pumping force behind the ingoing gases. The gas will continue to bounce back when the inlet valve shuts. If the pumping force is strong enough it will damp the bounce and stop the spraying; if the pumping force is not strong enough the reversal of motion will be all the stronger, and the spray wastage more pronounced. At any rate, it will be a year or two at least before forced feed can become standard on touring motor cycles, and in the meantime it seems to me that there is a good opening for a motor cycle carburetter fitted with baffles and non-return valves to trap this backward rush and obviate the present grievous waste of petrol by spraying out at the air holes.

A lightweight two-speed P. and M. climbing a 1 in 10 grade with an extra passenger on the carrier. (See below.)

A TEST OF CLIMBING ABILITIES.

THE wonderful hill-climbing abilities of the P. and M. two-speed chain-driven motor bicycle were again exemplified in a recent test on St. John's Hill, Notting Hill, W. It so happened that the day selected for the test proved wet, thus rendering hill-climbing far more difficult. A great many readers ask us from time to time what gradient a good 3½ h.p. two-speed machine will climb with a sidecar attachment and passenger, and we cannot do better than refer them to the test of the Phelon and Moore herein described, for, although it is not recommended that the machine should be burdened with the weight of an additional or third passenger seated on the carrier, it just shows what can be done with a moderate-powered machine, provided it is fitted with an efficient change speed gear. To revert to the test, St. John's Hill includes a stretch with a certified gradient of 1 in 10, although the photographs make it appear much less severe. It was pouring with rain at the time of the trial, consequently the roads were extremely heavy, yet the 3½ h.p. 82 by 88 mm. model carried three people up the hill—one in the saddle, another in the sidecar, and the third seated on the carrier—their combined weight being 31 stones. Nor was there any hesitancy on the part of the engine to perform its difficult task.

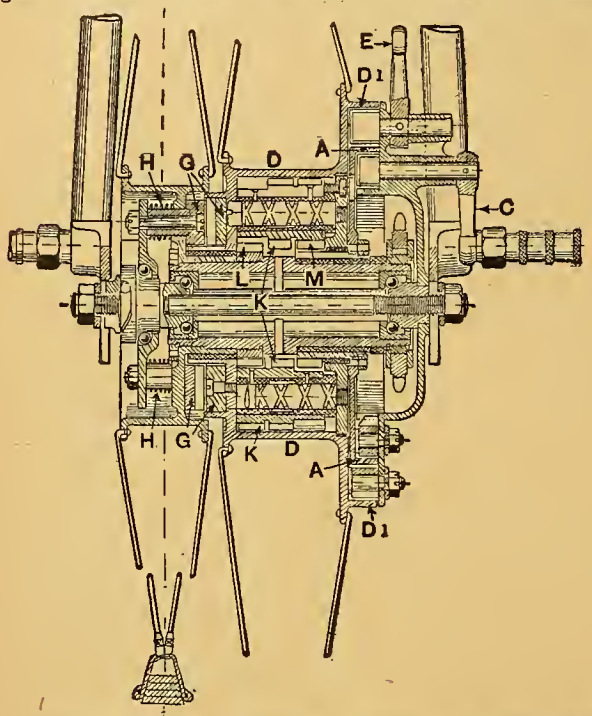


A real test! A 3½ h.p. P. and M. climbing St. John's Hill, Notting Hill, W., with three passengers.

Next the lightweight model was brought out to show its paces, and with an extra passenger on the carrier, making a total human freight of 20 st., the baby P. and M., with its 66 by 76 mm. engine rated at 2½ h.p., sailed to the summit unaided, on the low gear of course. We are asked to emphasise the fact that both machines were standard models, fitted with standard gears of 5 and 9 to 1.

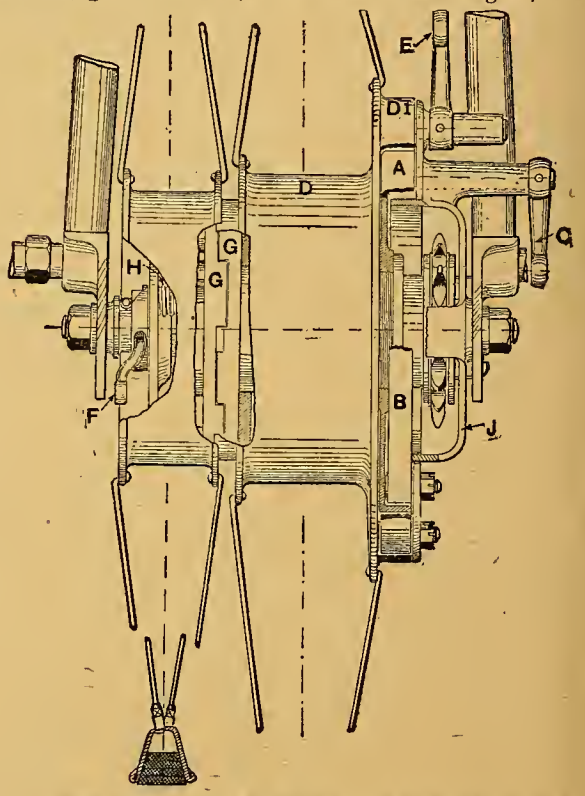
THE V.S. TWO-SPEED HUB GEAR.

AT the present time, when two-speed gears are increasing in popularity, a brief reference to the excellent V.S. two-speed gear may be interesting to our readers. The V.S. motor cycle, which under another name was so popular in the motor cycle world since its introduction into this country some six years ago, has been fitted with a two-speed gear for some time. The number of these machines



Sectional view of the V.S. Two-speed Hub Gear. This gear enables the engine to be started by the pedals with the back wheel resting on the ground. A, Brake drum for engaging low gear; B, brake band; C, lever operating low gear brake; D, hub shell; D1, extension of hub shell for ordinary brake drum; E, lever for ordinary brake; F, lever for operating free engine and engaging top speed; G, dog clutch; H, clutch disengaging spring; K, pinion gears; L, large fixed gear-wheel on hub; M, large loose gear-wheel on hub.

in use has not been great, but those that have been in use have given the greatest satisfaction to their owners. In company with many other firms who introduce a really useful innovation, the V.S. Company has had some difficulty in delivery, but now this difficulty has been totally overcome, the two-speed V.S. motor bicycles are likely to be exceedingly popular for side-car work. A proof of the reliability of the gear is its excellent behaviour in the End-to-end sidecar records. One of the chief advantages of the device is that, when it is in the free engine position, the engine can be conveniently started with the aid of the pedals with the road wheel at rest on the ground. It is interesting to note that, in the control of the gear, rods

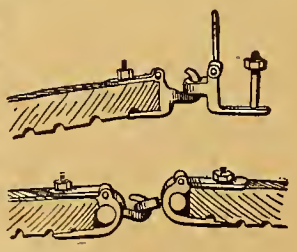


Part sectional view of the V.S. Hub Gear. The letters are referred to in the inscription under the first illustration.

and not wires are employed. On referring to the illustrations it will be seen that the gear is of the ordinary epicyclic pattern, fitted with parallel pinions. The engagement of the low gear is effected by applying the brake band B, which is applied by means of the lever C. The engagement of the top speed is by means of dog clutches.

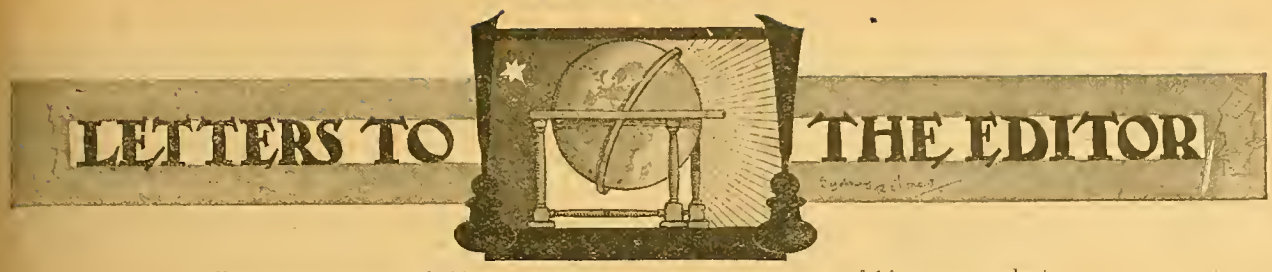
THE "GRIP" BELT FASTENER.

The patent belt fastener illustrated in the accompanying sketch has been designed to minimise the strain on fastener bolt and the hole in the belt. The bolts are rigidly attached to the bottom jaws of the fastener, and the top jaws being hinged, they can be forced down on the top of the belt by screwing up the nuts. This forcing down of the hinged jaws causes them to grip the belt and relieves the bolts of some of the strain. It is made by Mr. H. J. Smith, 60, Helena Road, Dereham Road, Norwich.



THE MOTOR CYCLE AND THE CAMERA.

Those of our readers who are not yet amateur photographers ought to read the "Bumper Number" of *Photography and Focus*, which will be on sale to-morrow (Tuesday), as its many pages are given up to a demonstration of the charms of photography as a hobby, the simplicity of modern processes, and the very little expenditure that is necessary, even when one is a hard-working amateur. A feature of the issue is the large number of very beautiful photographs by those who are quite beginners, reproduced in colour on art paper. "Photography and Touring," "Large Pictures with Small Cameras," "Cycle and Camera," "Photography at Night," and "Roll Film Photography" are a few of the subjects dealt with in what is an enormous pennyworth.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Obtaining Particular Brands of Oil when Touring.

[4610.]—We notice in your issue of February 21st that Dr. Burrow mentions how difficult he found it to obtain standard makes of goods, such as Price's oils, when touring. We might mention that this has occurred with several of our customers, and they have got over it by opening a deposit account with us, which enables them to telephone or telegraph to us from wherever they may happen to be, when we immediately send off the goods by the next passenger train. This system has been found to be of very great convenience to many customers, and this is our excuse for troubling you with this letter. A. W. GAMAGE, LTD.

Steering of Sidecars.

[4612.]—Is Mr. J. H. Lester's theory [4609] of Mr. steering of sidecar in *The Motor Cycle* of February 14th.

As I am about to fit a sidecar to my present machine, I should esteem it a favour if you would ask Mr. Porter the distance between his motor cycle wheels. R. JONES.

[The above letter has been submitted to Mr. Porter, whose reply is given hereunder.—ED.]

"Motor cycle wheels from centre to centre are 4ft. 10⅜in. It is important that the motor cycle should stand up perfectly vertical beside the sidecar when on a perfectly level floor."—HERBERT PORTER.

[4612.]—Is Mr. J. H. Lester's theory [4609] of Mr. Herbert Porter's difficulty in sidecar steering consistent with the latter gentleman's practical remedy?

Mr. Porter suggests setting the sidecar wheel inwards. This would mean that the sidecar wheel turns round a point much nearer the front than shown in Mr. Lester's diagram. Incidentally, I do not experience the difficulty in steering that is so much discussed. I may say my sidecar is of the rigid type, and the axle is in line with the rear bicycle axle (nearly). I have put motor cyclists in my saddle who have never steered a sidecar before, and they have gone straight away with no difficulty. My wife even, without any more tuition than I gave her in the sidecar has steered me.

Sidecarists should remember that the inside wheels of any vehicle rounding a curve at speed tend to rise. As an active sidecarist of some years' experience (though limited), I should like to recommend others in general, and Dr. Vincent Burrow in particular (in retort to his complaint on page 162), to tyres made by Messrs. W. and A. Bates, of Leicester. They are no-trouble tyres indeed. My rear wheel is shod with one of theirs put on early in 1907, since retreaded with a R.O.M. non-skid; my front and side tyres are Bates's Heavy, 26 × 2½, and are as put on in 1907, and used almost daily in my work. B. RICHARDSON BILLINGS.

American Records.

[4613.]—"Another Colonial" has evidently made a grave error in the selection of his *nom-de-plume*. Surely he should have signed himself "American" right away and been done with it. He asks if I have ever heard of Peary. I have, and, like most Britishers, admire him immensely. I grant that there is no direct connection "between Dr. Cook and the motor cycle," the point at issue being the methods of making and claiming records. There is little use of twitting certain British explorers because they did not reach the Pole. *They never claimed to have reached it.*

In short, "Another Colonial" would do well to remember that British sport and records are essentially clean and honest, and are universally accepted as such, and that doping of racehorses, sprinters, etc., common in America, is looked on with disfavour by British sportsmen. COLONIAL.

[4614.]—As a Britisher I must confess to a feeling of shame when I read of the unworthy and unsportsmanlike attitude taken up by various Englishmen in your correspondence columns regarding American records. When the Indian machine was first introduced into England my greatest wish was that it would not be long before it would bow down to the superiority of British productions. But when I read letters such as have appeared in *The Motor Cycle*, I admit that it makes me long for the day when America will sweep the board in every British competition and thus lower the arrogant pride of the average Englishman. I sincerely hope there will be no more letters published belittling American records, as they reflect discredit upon the British motor cyclist as a sportsman.

FAIR PLAY.

[We do not understand why "Fair Play" should ask for no more letters on this subject to be published. It is our custom to give both sides a hearing.—ED.]

Winter Riding.

[4615.]—I hope Mr. Warburton is not going to disappoint us about further experiences with sash-cord as a non-slipping device. If a simple thing like this will enable me to ride on muddy roads without constant haunting fear of coming a sudden cropper, I for one shall be very grateful for the tip. But I am lazy, and should prefer that Mr. Warburton should make the experiment himself first, and let us know. With somewhat worn rubber-studded covers I dare not go out on muddy or greasy roads on a 3½ h.p. machine.

I hope, when we hear from Mr. Warburton again, he will let us know how far he could go on sash-cord (on mud, not ice) without wearing it through. NERVOUS RIDER.

Motor Cycle Taxation.

[4616.]—"Road Surveyor's" article discloses an unsatisfactory state of things in Scotland. It seems to me there are three road users the Chancellor might have taxed instead of raising the already high licence on motor cycles. 1st, traction engines in Scotland; 2nd, horse carriages in Ireland; 3rd, saddle horses in the whole of the kingdom. I need give no reason for taxing the two first named. I think it will be admitted by all fair-minded people that saddle-horses kept and used solely for pleasure, sport, and show, are just as much a luxury as the poor man's motor cycle.

To put it plainly, if I could afford to ride for pleasure on a horse worth forty guineas I should be exempt from taxation, instead of which I am to be hit from three or four sides to the extent of over £2 (a moderate estimate) a year for riding a motor cycle worth £8, or nearly three times as much as the owner of a trap or governess car to carry four or five persons, and as much as the gentleman's carriage and pair.

It will be argued the saddle horse is costly to keep. Then the man owning one can better afford than the motorist to pay something for the rights he enjoys on the roads. I have unsuccessfully urged this view on the local M.P. He did not agree, but could not deny the luxury question, and admitted it was a good suggestion for Mr. Lloyd George. If motor cyclists would approach their Parliamentary representatives possibly this plunder might be stayed, but I am afraid motorists are regarded as fair game to be bled. I should think that a guinea tax on saddle horses and hunters, together with the usual licence on the other two road destroyers at present exempt, would nett a good sum, and also give them a chance to pay their fair share for the roads they help to wear out and pollute. A. A.

Lightweights v. Heavyweights.

[4617.]—In reply to Mr. Marshall Thomas's letter in your journal of February 14th, I shall be most interested to see if he and his friend riding a 3½ h.p. Triumph and Rex machine respectively can climb Main-Porth hill mentioned in my letter to you of a previous date.

If Mr. Thomas cares to communicate with me through your paper, an appointment can no doubt be arranged. Incidentally I might mention that I know of a machine of the lightweight type fitted with a variable gear which can go up the above hill on the low speed without pedal assistance. It is a 2¼ h.p. 1910 model. Both the owner and myself have been up on it. It would certainly be instructive to see what a heavyweight can do. G. E. CASE MORRIS.

[4618.]—Having taken a particular interest in the controversy now raging in your "Letters to Editor" column *re* "Lightweights *versus* Heavyweights," I thought I could not let it pass without giving a word in favour of the heavyweight. With lightweights I have no experience.

Enclosed is a photograph of my machine, which was built locally by Mr. J. H. Green, 186, Derby Street, Bolton. The engine is a 3½ h.p. Minerva, Chater-Lea fittings, and a Powell two-speed free engine hub. The engine starts by a push of the pedal.

I am in the assurance business, and I use the machine for collecting every day. I might tell "Rus-in-Urbe" that on Mondays I have ninety calls, and fully sixty per cent. of those are certainly not more than three hundred yards apart.

The writer of the accompanying letter on his 3½ Chater-Lea Minerva.

I might also say I am not exactly a Sandow, inasmuch as eighteen months ago I had an accident at Gloucester, which laid me up for nine weeks.

The machine has been used for this collecting business by me every day—hail, snow, or blow—since last August up to a fortnight ago, when I took the engine down for overhauling purposes. Previous to using the motor cycle for this work I used a push-cycle, and from a six months' experience of using the motor for same work "they can take all the push-cycles to a desert island for what I care."

I think that, with all due respect to the gallant little lightweight, I can say that, given a good free engine clutch and two-speed gear (starting to be operated by pedal)—and the Powell hub I have found to be absolutely A1—there is nothing to touch a heavyweight for everyday use.

I may say my machine complete weighs 210 lbs., but, thanks to free engine clutch, it is as easy as a pedal cycle to manage. PAINLESS.

Lubrication.

[4619.]—I always find detailed experiences of riders over some thousands of miles most interesting and valuable reading. Makers' instructions concerning the above, for instance, cannot always be taken as gospel. The following are a few examples.

It is invariably stated, I think, that three pumps of oil should be put into the crankcase after cleaning out with paraffin. In my case there is quite a quantity of smoke when this is done, which never occurs at other times, yet my engine is always properly lubricated. There have been cases of plugs misfiring through this cause. I consider two to two-and-a-half pumps sufficient.

When oiling magneto, if makers' instructions are followed oil continually works into contact breaker, often getting upon platinum points and causing trouble. In my case three or four drops of ordinary cycle oil are put into each lubricating well of magneto every 200 miles, and after 4,200 miles with present mount I have not found any undue wear.

A certain variable gear which I have had fitted to my machine requires the boss of the pulley to be lubricated with grease, and the makers stated that it must be "well packed" with it. But when this is done the grease flies out when the machine is running on the road, and gets upon one's trousers. The safest plan, from the point of view of cleanliness, is that when the pulley appears to be filled up with grease, some should be extracted by reversing the direction of the plunger of the grease injector.

Why cannot British firms fit an "inspection window" in the bottom of the crankcase? This, in conjunction with an automatic lubricator, would practically dispense with a hand pump at all for any ordinary riding, as one could always tell the exact level of oil in the crank case with no trouble at all, by looking through the window a few minutes after the engine has stopped running to allow the oil to "settle." I have been told by a user that it is not a fact that the lubricator stops working in frosty or cold weather, but, of course, cannot assert this from personal knowledge. OILE.

Checking in Reliability Trials.

[4620.]—I am obliged to Mr. Scriven for his explanation of the point raised by me in connection with his article.

Successful as this system of checking appears to have been in trials organised by the Bradford M.C.C. it does not convince me that the times as taken in this way can be absolutely accurate and therefore irreproachable, and until we get such a system there is bound to be "checking grumbles" amongst the competitors. Now I do not wish to occupy any more space in *The Motor Cycle* with regard to this question, and I accept Mr. Scriven's statement that the competitors who rode under these rules are satisfied. After all, if they are all satisfied, what else matters.

Like Mr. Scriven, I also have had some experience at competing as well as organising, and must say that I am not, and never have been, satisfied with the usually adopted system of timing, and shall not fail to put the Bradford M.C.C. method into operation at the first opportunity. If I find it works satisfactorily I shall be under an obligation to Mr. Scriven for the trouble he has taken to explain it.

I do not think I have ever had the pleasure of meeting Mr. Scriven, and my name will therefore not be known to him, but I append it and hope we shall "remove this grievance" during 1910

A. E. DENDY, Hon. Trials Sec., West Essex A.C.

The Motor Cycle in the United States.

[4621.]—I find *The Motor Cycle* of the greatest interest. Several of your recent articles relating to American machines convey a rather wrong impression, however. One interview in particular, published January 3rd, criticises our motor cycles very harshly, and, I think, unfairly. The reply that Mr. Ovington made to this article I believe to be a very excellent one, but I desire to add one or two points in regard to frame lines and belts. The American Motor Co., with which I am connected, and which is one of the largest exclusive motor cycle manufacturing companies in the United States, has used the straight frame construction since 1903. During the last four years we have used an American belt, viz., the Barnes mineral tanned, flat, and 1¾in. wide. I have known many of these belts that were used over 12,000 miles and were still in excellent condition. We used last year a number of their leather V-belts which proved highly satisfactory, though not so durable as the flat. I would also like to call your attention to the fact that the handle-bar control by twisting grips which is making friends abroad originated here.

In consequence of the fact that we have never done any racing our machine is probably unknown to you, as our policy has always been to make a strong serviceable road machine for business and pleasure riding.

New York. GEO. P. JENKINS.

[4622.]—I have read with considerable interest your issue of February 7th, and wish to reply to your editorial footnote to the letter headed "The Motor Cycle in the United States," by "A Disgusted Belt User."

I have owned a motor cycle for the past six years, and until 1908 had never ridden a belt-driven machine. In the spring of the latter year I bought a 7 h.p. Peugeot and had it shipped to Los Angeles, California, where I rode it until last month.

I have motored many thousand miles on the Pacific Coast roads for touring and business purposes, and have also done some track racing, all with a V-belt.

My machine came with a French leather belt, from which I could get about 1,000 miles with very careful attention. Later I replaced this with a rubber and canvas belt which only gave me a little over 400 miles. Later still I returned to the French leather belt with better success, as I found that by running it a little slack I could get more mileage. With the latter belt I had great trouble by its pulling out at the fastening as soon as it began to get old. I had to carry many pieces for insertion, and finally carried a complete extra belt for emergency, which often arose.

During the last season I was unable at times to get the French belt without sending to France, hence was compelled to return to the rubber. I tried several of American and English makes, and not one of them carried me over 500 miles. I had exactly the same trouble as is mentioned in the letter of "A Disgusted Belt User," and I must say that at times I wished for anything but a V-belt.

In crossing mountain ranges in California, where the roads are anything but good, I had my greatest trouble, never being able to get my belt "just right." It was always too tight to get started or too loose. Upon one trip from Los Angeles to San Francisco (485 miles) I used two rubber belts, and even then had trouble in finishing with the second.

It must be mentioned, however, that a 7 h.p. machine will pull out a belt much more quickly than one of lesser power. There are many belt-driven motor cycles in California of, say, 1½ to 5 h.p. on which more mileage is done than I am able to claim, but at the same time I have only heard of one which gave over 3,000. This one was a French leather belt.

Being in the rubber business myself I have naturally been able to get hold of the best rubber belts for my personal use. However, after reviewing my past experiences with a belt-driven motor cycle, I think I shall return to my original choice, "the chain." JAMES GARVEY.

Motor Cycle Touring in India.

[4623.]—I would like to make a few remarks on Mr. G. H. Wilson's article "A Week-end Trip in India," which appeared in *The Motor Cycle* of January 3rd, 1910. Mr. Wilson seems bent on impressing those not in the know with the idea that the roads in India are well nigh impassable, but let me, with the experience of twenty years in various parts of India, assure them that the main roads are quite as good as those in England and much wider. I well remember my ride from Allahabad to Cawnpore and back, a distance of 126 miles each way, on a cushion-tyred pedal bicycle in the latter part of March, 1896. The roads were perfect, and starting at 5.30 a.m. myself and a friend similarly mounted rode until 10 a.m., when we had to halt on account of the heat. We started again at 5 p.m. and rode until 9.30 p.m., by which time we had covered ninety-one miles. We easily reached Cawnpore early next morning. We were both novices, and making due allowance for the excessive heat in that part, a head wind, and a few short halts, this does not, I think, sound like bad roads.

Although I am not now far from Bombay I am not acquainted with the roads alluded to by Mr. Wilson, but the roads here are, to say the least, very fair. Possibly Mr. Wilson's trip took him over what we call jungle tracks; these are very similar to the worst of our country lanes in England. The chief drawback to motor cycle touring in India that I have yet experienced is the great distance between places at which petrol and refreshments can be obtained, and as my mount is a lightweight this affects me strongly. Ordinary repairs I am able to do myself. I should add that our return journey from Cawnpore to Allahabad was accomplished two days later in a similar manner.

Deccan, India. A.O.C.

The A.C.U. Quarterly Trials.

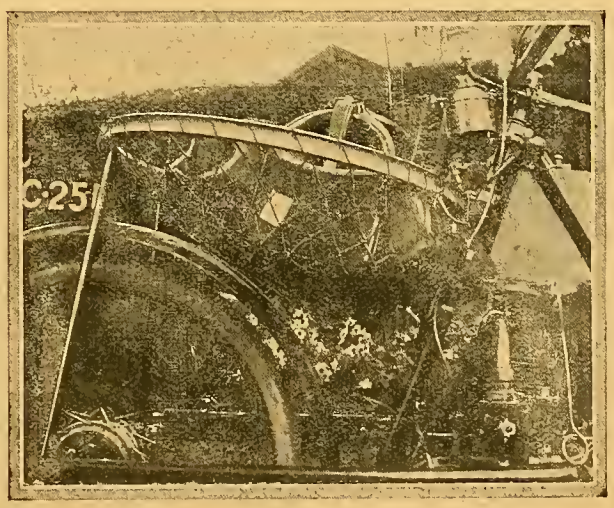
[4624.]—With your kind permission, in reference to Mr. H. H. Bowen's letter [4589], I would like to say I am quite aware that he reported his stops, but was surprised at the number of marks he was awarded.

I have read Mr. W. Cooper's letter in your issue of February 28th, and note he states his and Mr. Pratt's case clearly. He says he was the second man to start up Dashwood Hill, followed by Mr. Pratt. He says they both fell owing to their front wheels fouling a rut. I am quite willing to admit that the ashes thrown on the road were an advantage in starting, but I would point out that Mr. Pratt got forty yards from the start before he fell; therefore I fail to see how the ashes at the starting point would have prevented his fall. Mr. Cooper states that he is quite satisfied to abide by the judges' decision, and then goes on to say he does not agree with Messrs. G. Lee Evans and W. O. Bentley (Indian) being awarded non-stops.

I cannot understand any competitor saying he is satisfied when such glaring mistakes have been made, except he be one of the favoured ones. I have no wish to have the A.C.U. rules made to fit my own particular case, but would like to know that the rules would be enforced in all cases.

I have been a competitor in A.C.U. events since 1904, and I quite agree with Mr. Cooper that the object should be to assist rather than to disparage the judges, and would like to suggest, their task being a heavy one, that they accept some of the outside help so willingly offered.

I hope to compete in future A.C.U. events, and perhaps it may not be to my advantage to complain, but I do so in the interest of those competitors who wish to see fair play and no favour. ELI CLARK.



A novel form of luggage carrier attached to a Zenith Bicar in use in New Zealand. A wheel rim has been adopted, and a string bag holds all necessary touring equipment.

EXPERIENCES WANTED.

"J. S. P." (Lancs.) desires users' opinions of the Moto sacoche or 2 h.p. Moto-Rêve.

"J. S. V." (Warrington) would like readers' experiences of the Mabon clutch on a 3½ h.p. Triumph, particularly in connection with hill-climbing.

"H 3545" would be glad if readers would give him their experience of the F.N. two-speed gear with the 5-6 four-cylinder motor bicycle, or of the same machine and sidecar without the two-speed gear.

"A B. V." (Launceston) would be glad if any owner of a 3½ h.p. Minerva (1908 model) could inform him how to prevent overheating. He has tried lowering the compression without any good result. Gear 5¼ to 1. Weight of rider, 12 stones.

"E. F. E." (Ealing) would like readers' experiences with the A.C. tricar (racing model). Does it compare favourably with a motor bicycle and sidecar of equal h.p.?

"E. W." (Norfolk) would be glad to have owners' experiences of the Unito or other coupling. Also of the 3 h.p. N.S.U. motor bicycle, and L.M.C. variable pulley and free engine.

British Magnetos in the States.

Mr. F. R. Simms, chairman of the Simms Magneto Co., Ltd., is at present in New York, where the question of assembling and finishing Simms magnetos as well as their manufacture in the States will occupy his attention during the next two or three months.

Collier's Monoplane.

Motor cyclists interested in aeronautics should turn their attention to *The Aero*. Many well-known motor cyclists, such as Collier Brothers, have devoted their attention to aeroplanes. A detailed description with illustrations of Collier's monoplane will appear in this week's issue of *The Aero*, on sale to-morrow.

The De Beers Atomiser.

Some time ago there appeared a description and an account of some experiences we had with the De Beers carburetter jet. This jet, as our readers may remember, consists of a hollow cylinder containing a piston in which helical grooves are cut. The top of the cylinder is closed except for a small orifice, while the petrol entering at the bottom causes the piston to revolve and atomise the spirit in a most effective manner. The chief advantages claimed for the jet are economy, increased efficiency, and flexibility. For one month only, Petrol Economisers, Ltd., Avenue Chambers, Southampton Row, W.C., have decided to place these jets on the market at an exceedingly moderate figure to enable motor cyclists to give them a trial.

SPARKLETS

Catalogues Received.

The Wearwell Cycle Co., Wolverhampton, are devoting a certain section of their cycle catalogue, of which we have just received a copy, to motor cycle accessories which they stock.

The Moto-Rêve Co., Ltd., Acton Vale, W., send us a 1910 catalogue of the Moto-Rêve lightweight motor cycles. Including the lady's machine there are now six models of the Moto-Rêve, varying in weight from 78 to 94 lbs. Model B, the single-cylinder, is, of course, the lightest of all. Copies of this catalogue will be sent free on application to the works at the above address.

"Everything for the Motorist" was the title adopted by A. W. Gamage, Ltd., some two or three years ago for their catalogue, and we do not think a better title could possibly have been selected for the 1910 issue, which is just to hand. Practically every known accessory on the market is included in this bulky volume, which consists of 158 pages. Not only are the up-to-date articles in the way of accessories, clothing, tyres, etc., catalogued and priced, but there are innumerable fittings included which are constantly being required by motor cyclists who possess machines which are not of the very latest type. All the pages are not devoted to motor cycle goods, the catalogue being a general one embracing the pastime from a motor car and motor cycle point of view. Copies will be sent on application to A. W. Gamage, Ltd., Holborn.

A Hint.

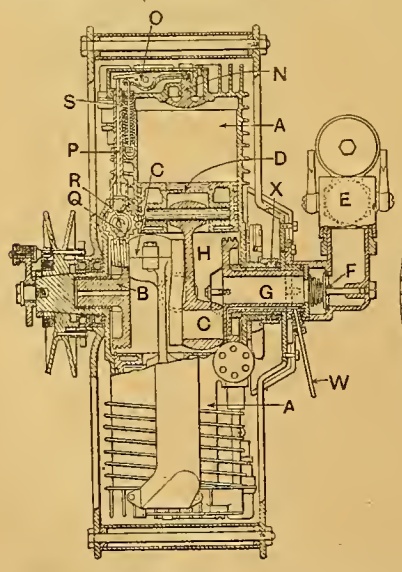
Customers unwittingly often give manufacturers a great deal of unnecessary trouble, simply because they persist in addressing letters to individual members of a firm instead of to the company. A recent instance of the trouble caused by this procedure was brought to our notice the other day. A certain motor cyclist was an intimate friend of a well-known rider employed by a firm in London. The rider in question was away in Manchester, and his friend addressed him a personal letter instructing him to send for his motor cycle from one of the London termini, enclosing the cloak room ticket. Owing to the individual to whom the letter was addressed being away, it was forwarded to him at the Manchester Show, and after three days' delay the head of the firm found out what the instructions were, and they were at once carried out. In the meantime, the customer sent a furious letter to the firm asking why his communication had not received attention. We think this instance serves to show how important it is not to address business letters to individual members of a firm.

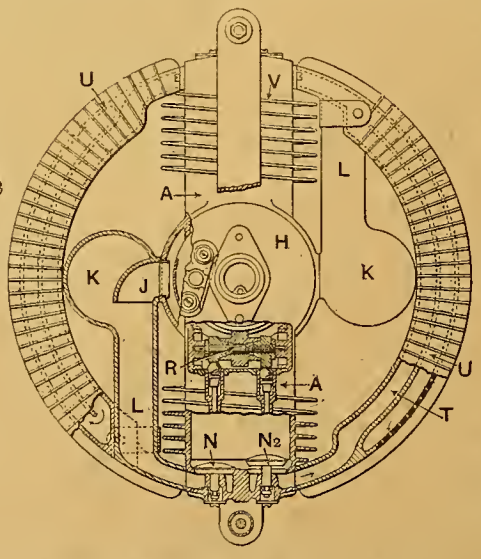
A RECENT PATENT.

By ERIC W. WALFORD F.C.I.P.A.

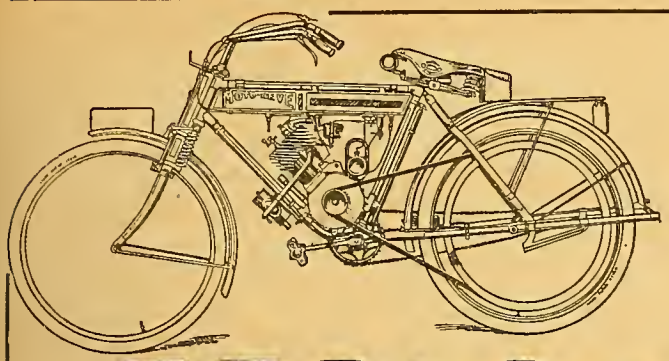
A Rotary Engine.

This engine (formerly known as the Barry) is of the Gnome type, which is being largely used on aeroplanes. In the present case there are two cylinders A diametrically opposite one another, and





these rotate around a stationary crankshaft B. The crankshaft is formed with two crank pins C, each of which is connected to one of the pistons D. The pistons consequently move inwards and outwards together at the same time as the cylinders rotate. The carburetter is shown at E, and as the pistons move outwards suction is set up, drawing the gas past the spring-loaded valve F through the hollow crankshaft at G, and into the crank chamber H. As the pistons move inwards, the gas is forced through one of the nozzles J into a storage chamber K, and from here it finds its way along the induction pipe L through the inlet valve N into the cylinder. The valves are both operated by rockers O, tappet rods P, and adjustable cams Q, these cams being mounted upon a crankshaft R rotated by spiral gearing, as shown. Each of the valves is actuated by a spring at S, which keeps it closed, but, of course, centrifugal action as soon as the engine starts is sufficient to keep each valve on its seat. Exhaust takes place through the exhaust valve N_2 entering the exhaust passage T of the silencer U. The silencer rotates with the cylinders, and is ribbed for cooling purposes, the cylinders also being provided with inclined flanges V at such an angle that the air impinges forcibly upon them, so that a maximum cooling effect is obtained. Lubricating oil is admitted by the passage W into the hollow crankshaft, and the outer portion of the shaft is provided with packing at X to maintain the crank chamber gas-tight. Of course, by employing rotary cylinders, one can dispense with the flywheels, and, as there are no reciprocating parts, the whole engine can be very easily balanced, and can be so constructed as to be practically vibrationless.—W. A. Richards and C. R. Redrup, No. 27,596, 1908.



THIS IS THE MACHINE the

MOTO-REVE

LIGHTWEIGHT

—we wish to take you for your holidays. You cannot possibly do better. The price **27** guineas, the weight 78 lbs.

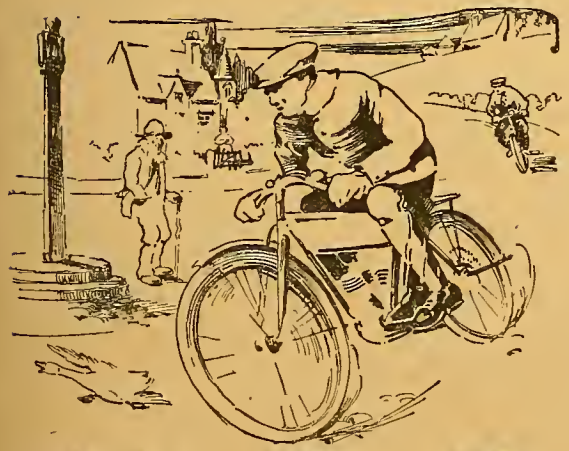
PRINCIPAL POINTS.—Magneto Ignition, Druid Spring Forks, Entire Handle-bar Control, Stand, Carrier, Number Plate, Single-cylinder (60 x 85 m/m). All complete and ready for use. Send for Catalogue.

MOTO REVE CO., LTD. (DEPT. A)
ACTON VALE, LONDON, W.

S.&H.

CLINCHER

MOTOR CYCLE TYRES.



RESILIENT. SPEEDY. SAFE.

These famous Tyres are made in four patterns but the

CLINCHER RUBBER-STUDDED TYRE
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are particularly recommended for their remarkable non-slipping and good wearing qualities, making them

THE IDEAL TYRES FOR WINTER WORK

Write for unique Catalogue which will give you all particulars.

THE NORTH BRITISH RUBBER Co., Ltd., CASTLE MILLS, EDINBURGH.

(845.)

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), on Tuesday morning previous to the date of issue.

When possible advertisements received at Coventry on the Wednesday will be inserted.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Leroy, Stafford Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan Carmarthen Cardigan and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X
Scotland.

SECTION XI.
Ireland and Isle of Man.

If you want a good reliable SECOND-HAND MOTOR CYCLE, buy now from

WAUCHOPE'S,

9, Shoe Lane, E.C.

No. 2168.—2 h.p. New 1909 Standard MOTO-REVE; **28 Gns.** Guaranteed. At **Wauchope's, 9, Shoe Lane, E.C.**

No. 2157.—3½ h.p. 1907 TRIUMPH, Mabon clutch, Palmer tyres, spring seat, horn, toolbag, tools, etc.; **£27 10s.** Guaranteed.

No. 2169.—3½ h.p. 1909 Standard TRIUMPH, Clincher studded tyres, usual spares; **£3S.** Guaranteed.

No. 2113.—2¾ h.p. 1909 DOUGLAS, standard model, stand, carrier, toolbag; **£24.** Guaranteed.

No. 2164.—6-7 h.p. Twin BAT, 1909 model, Mabon clutch, excellent condition, good sidecar machine; **£35.** Guaranteed. At **Wauchope's.**

No. 2177.—3 h.p. KERRY, magneto ignition, h.-b. control, Rom tyres, spring forks, stand, carrier; **£17.** Guaranteed. At **Wauchope's.**

No. 1796.—1¾ h.p. MOTOSACOCHE, Clincher tyres, Druid forks, new condition; **16 Gns.** Guaranteed.

No. 2104.—3½ h.p. MATCHLESS, spring frame and forks, Rom tyre, magneto, J.A.P. engine, overhead valves, toolbag, horn, etc.; **£25.** Guaranteed.

No. 1996.—3½ h.p. 1909 Free Engine TRIUMPH, in new condition; **40 Gns.** Guaranteed.

No. 2077.—2½ h.p. 1908 Magneto Featherweight REX, Clincher tyres, unscratched; etc. Guaranteed.

No. 2019.—Four-cylinder F.N., Rom back tyre, Palmer front, h.-b. control, petrol gauge, horn, two toolbags, stand, carrier, etc.; **£20.** Guaranteed.

No. 2172.—3½ h.p. N.S.U., in low Chater No. 6 frame, two-speed gear, good tyres, horn, toolbag; **18 Gns.** Guaranteed.

No. 1857.—3½ h.p. 1908 Two-speed Magneto BROWN, very good passenger machine; **20 Gns.** Guaranteed.

No. 2150.—4½ h.p. 1908 Twin MINERVA, with rigid sidecar; **£27 10s.** Guaranteed.

No. 2125.—5 h.p. 1907 Two-speed VINDEC, standard model, very good sidecar mount; **£28 10s.** Guaranteed.

No. 2150.—3½ h.p. 1909 TRIUMPH, standard model, as new, Clincher rubber-studded tyres, usual spares; **£37 10s.** Guaranteed.

No. 1899.—3½ h.p. 1909 BROWN, magneto, new tyres, enamel, plating, etc., very good; **19 Gns.** Guaranteed.

No. 1885.—1¾ h.p. Magneto F.N., spring forks, Englebert tyres, very good condition for a second-hand machine; **17 Gns.** Guaranteed.

No. 2088.—2 h.p. 1909 MOTO-REVE, Continental tyres, lamp, horn, toolbag, carrier; has not run 100 miles; **26 Gns.** Guaranteed.

No. 2113.—2¾ h.p. 1909 Standard DOUGLAS, Druid forks, stand, carrier, etc.; **£24.** Guaranteed.

No. 2145.—3½ h.p. Magneto N.S.U., spring forks, stand, carrier, toolcase, etc., good tyres; **16 Gns.** Guaranteed.

No. 2139.—7-8 h.p. BAT-J.A.P., 1909 model, Kempshall back tyre, Palmer front, two lamps, two horns, mirror, two toolbags, quantity of spares, almost new; **£SS.** Guaranteed.

No. 2148.—2¾ h.p. MINERVA, spring fork, Palmer back tyre, Goodrich front, fitted with stand, carrier, pump, toolbag, etc.; **£16.** Guaranteed.

No. 2135.—1¾ h.p. N.S.U. Lightweight, magneto, good tyres, lamp, horn, toolbag, tools, spare tyre, etc.; **£17 10s.** Guaranteed.

No. 1813.—1¾ h.p. MOTOSACOCHE, 1908 model, Druid forks, good tyres, lamp, stand, carrier, horn, etc.; **£18 10s.** Guaranteed.

7-8 h.p. 1910 Two-speed J.A.P.-BAT, Cowey speedometer, F.R.S. lamp, Whittle belt, Rom non-skid tyres, luggage carrier, etc.; **£60.** Guaranteed.

No. 2127.—4 h.p. ANTOINE, good tyres, enamel, plating, etc., very good; **£14 10s.** Guaranteed.

No. 2115.—3½ h.p. 1908 Two-speed REX DE LUXE, spring forks, cantilever seat, suitable for solo or sidecar work; **£2S.** Guaranteed.

No. 2101.—2¾ h.p. CHASE, genuine M.M.C. engine, spring forks, Palmer tyres, footrests, h.-b. control, stand, carrier, and horn; **£16 10s.** Guaranteed.

No. 2081.—3 h.p. FAFNIR, Chater-Lea fittings, toolbag, pump, and horn; **£10 10s.** Guaranteed.

No. 2196.—5 h.p. 1907 REX DE LUXE, magneto, Roc clutch, good tyres, spring forks, and seat; **17 Gns.** Guaranteed.

Besides those quoted in this space, we can offer other good bargains. Do not fail to get our prices before definitely deciding. Recommended by all the leading makers for exchange business. Terms on application.

WAUCHOPE'S, 9, SHOE LANE, FLEET ST., LONDON, E.C.

'Phone, 5777 Holborn. Telegrams: "Opificer, London."

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days, and if no sale is effected, each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmoreland.

3½h.p. Rex, late 1908, magneto, new tyre and Whittle belt, splendid order.—Northern Garage, Ltd., Alnwick.

MOTO-REVE, twin, in good condition, many improvements; £22.—Rae, Oakroyd, Park Rd., West Hartlepool.

N.S.U., 3½h.p., unscratched, not ridden 100 miles, studded back cover; £28; immediate sale; no offers; bargain.—46, Percy Terrace, Sunderland.

MINERVA, 3½h.p., tyres and belt like new, two accumulators, spring forks all thoroughly overhauled, and in good condition, £16 10s.; 4h.p. Rushworth, long, low, footboards, spring forks, in good condition, £12.—S. F. Hill, 15, Cleveland Parade, Darlington.

SECTION II.

York and Lancashire.

HUMBER Motor Bike, tuned up; any trial; £7.—Evers, Wath-on-Dearne.

TRIUMPH, 1910, 3½h.p., perfect, run 60 miles; £45.—14, Duchy Grove, Harrogate.

CROSS for Triumphs in Rotherham; 1910 and 1909 models in stock; £48 15s. and £43.

1909 Triumph, Palmer tyres, £34; 1909 T.T. Triumph Dunlops, like new, £40.—Cross, Triumph Agent, Rotherham.

BAT, 2½h.p. genuine De Dion, spring frame; £11.—80, Shirley Rd., Cheetham, Manchester.

F.N., 4½h.p., footboards, h.b. control, perfect condition; £18 18s.—Briggs, Whitby, Yorks.

1908 Rex, 2½h.p., perfect order, magneto, tyres good £14 10s.—26, Emerson St., Weaste, Manchester.

TRIUMPH, 1910, just delivered, unridden, must sell £46, bargain.—4,195, *The Motor Cycle* Offices, Coventry.

EASTER Cometh, and Douglas buyers wanting quick delivery should drop a line to Haslam, 293, Ecclesall Rd., Sheffield

TRIUMPH, late 1909, splendid condition, new R.O.M. back tyre, compression perfect; £36.—Darling, Sunnyside, Keighley.

P. and M., 1908, not run 3,000, fine machine for sidecar, complete, and with all spares; £32.—293, Ecclesall Rd., Sheffield.

1909 P. and M., in splendid condition, two-speed, magneto, handle starting, lots of spares. — 37, Elizabeth St., Bradford

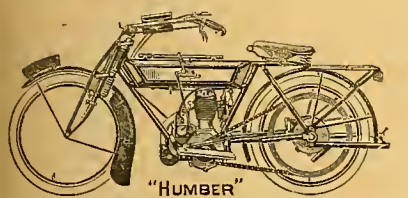
BRADBURY, late 1909 model, direct from works and guaranteed; £36 17s. 6d.—Waite's, Brooks Alley, Liverpool. Royal 3782

TRIUMPH, 1909, 3½h.p. T.T. model, in perfect condition, touring bars, lamp and generator, horn and tools, not ridden 2,000 miles; £34.—F. Mackay, West Park, Harrogate.

£54 17s. 6d. for £42 10s.

In consequence of our offer last week to supply a brand new Two-speed Humber and Coronet Sidecar at the absurd price of **£42 10s.**, orders have come in from all parts of the country, making a heavy drain upon our stock. If you wish to secure a **"combination"** that will **"whack"** a **£500** car on all points, you must let us have your cheque **now.** Remember we are the only firm who can supply these **Humbers,** having secured the entire stock. Be in time for Easter.

£54 7 6. for £42 10 0.



1909½ HUMBERS

Brand new. These you can hardly tell from 1910 models, being fitted with improved pattern silencers, spring forks, larger pulleys, Roc licensed two-speed gear, H. B. control registered tank, high tension magnetos, Dunlop tyres, oil pump operated by foot, stand and carrier, toolbag with all tools fitted to handle-bar. Fully guaranteed.

£42 10s., complete with sidecar.

1909½ Single Speed Humbers.

We have a few of these beautiful models, brand new, fitted with magneto ignition, Druid spring forks, handle-bar control. Usual price £45.

Our price **£34 10s.**

NEW 1909 ARNOS.

We have a few Brand-New 3½ h.p. Models, fitted with magnetos, h.-b. control, complete with tools, etc.

List price, £45. Our price, **£32 10s.** Or exchange. Cash offers wanted.

Other Sidecar Machines.

¼ h.p. STEVENS Tricycle, two wheels in front..	£11 10
5½ h.p. BROWN, twin, 1908, magneto, free engine	£25 10
5 h.p. Twin REX, four speeds, spring forks	£16 10
5 h.p. Twin REX, 1908, magneto, spring forks..	£24 10
3½ h.p. HUMBER, 1909, two speeds, soiled only	£32 10
3½ h.p. BAT, magneto, two speeds, spring frame..	£24 10

Beautiful Solo Mounts.

3½ h.p. TRIUMPH, magneto, etc., 1909	£35 0
3½ h.p. TRIUMPH, 1908, Mabon free engine	£30 0
3½ h.p. TRIUMPH, 1907, in splendid condition ..	£25 0
3½ h.p. DOUGLAS, 1909, studded tyres, like new	£32 10
3½ h.p. REX, 1909, tourist, soiled only	£32 10
3½ h.p. REX, colonial model, magneto ignition ..	£12 12
3½ h.p. QUADRANT, 1909, Roc two-speed gear..	£32 10
3½ h.p. QUADRANT, 1908, mag., beautiful order	£25 0
3½ h.p. MINERVA, mag., enamelled French grey	£19 10
3½ h.p. MINERVA, magneto, splendid condition..	£18 10
3½ h.p. N.S.U., magneto, 2¼in. tyres, low built ..	£22 10
Four-cylinder F.N., magneto, spring forks	£17 10
3½ h.p. N.S.U., twin, 1908, magneto, two speeds..	£27 10
2½ h.p. SPARK, vertical engine, magneto	£8 15
2½ h.p. Twin REX, with Forecar	£16 10
2¾ h.p. MINERVA, spray, good running order ..	£3 15

BIG CASH DISCOUNTS.

THREE 1909 REXES.

Used for trials only. Standard Tourist Models, Magnetos, H.B. Control.

£29 10 0. Each.

THIS WEEK'S SPICY BARGAIN.

3½ h.p. NOBLE, vertical engine, M.O.V., complete with coil, belt, and accumulator, number-plates, etc., in good running order.

£5 5s. £5 5s. £5 5s.

We will reserve machine upon receipt of **£1** deposit, and accept balance **6/-** weekly.

1909 —. Wanted, Magneto Motor Cycles Good prices given. Waiting.—

BOOTH'S MOTORIES,
CHARLES STREET, off Square Road,
Phone 1062. **HALIFAX.** 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

MANCHESTER Motorists can obtain Ariel, Bradbury, Douglas, Norton, P.M.C. two-stroke from official agent, Gourlay, Fallowfield.

5 h.p. Twin Pengeot, handle control, Whittle, new R.O.M. back wheel, good condition, fast, low; £16.—Mathias, Latchford, Warrington.

3½ h.p. Magneto Triumph, 1907, new, h.b. control, belt pulley, and tyre, spares, all accessories, just overhauled; £24.—Ketton, Fulwood, Preston.

3½ h.p. Minerva, spring forks, magneto, in splendid order, tyres perfect, stand, tools, etc.; £16 10s., bargain.—Burgess, 14, Abbey St., Accrington.

1909 Bradbury, 3½h.p., new June, little ridden, splendid condition, complete; £30; good reason for selling.—Tate, Grosvenor House, Menston, near Leeds.

2½ h.p. Noble, splendid condition throughout; would accept best offer over £8, or exchange anything useful.—J. Hauson, Halifax Rd., Hightown, Liversedge.

3½ h.p. Brown, 1909 model, new last May, battery ignition, S.E. tyres, handle-bar control, adjustable pulley, tools spares, electric lamps; £20.—34, Exeter Rd., Bootle, Liverpool.

1909 Triumph, only run 1,500 miles, new lamp and generator, horn, spares, cyclometer, studded tyres, machine as good as new; £38 10s.—Longbotham, Milnthorpe Grange, Wakefield.

1909 8h.p. Matchless-J.A.P., specially built (£75), spring forks, variable pulley, starts instantly, accumulators, perfect, scarcely ridden; £42; want lower power.—Garnsworthy, Greenhill, Prestwich.

TRIUMPHS, immediate delivery, come and see me before purchasing your 1910 mount, any make supplied; second-hand Triumphs taken in part payment.—Triumph Agent, 53, Trafford Rd., Salford.

ASTER, 3h.p., low Chater frame, grand condition, two good accumulators, footboards, most comfortable and reliable machine, very easy starter, only wants seeing; £16.—Johnson, chemist, Coronation St., Blackpool.

5-6h.p. 4-cyl. F.N., 1909 model, footboards, £37 (cost £53 10s.; also two-speed gear (recently overhauled by makers), £7, cost £10 10s.; and Wysall bucket seat, little used, £2, cost £3 3s.; or the lot £45.—M., 14, Union St., Ulverston.

4½ h.p. Twin Minerva, 1908, Chater-Lea No. 6 frame, only done 2,000 miles, in perfect order and condition, two accumulators, horn, lamp, bag, and tools, Albion free engine pulley, new belt and rubber studded tyre, never been punctured, good as new.—J. Phillips, Queen's Rd., Chorley.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

5 h.p. Twin Kerry, splendid condition; £14, tyres excellent.—Kelly Bros., Llandudno.

5 h.p. Twin Rex de Luxe, Roc clutch, magneto, splendid condition; £25.—Henshaw, wheelwright, Stockport.

3½ h.p. Triumph, 1908, just re-bushed throughout, splendid running order, fast; £33, or near offer.—Jarrett, Shrewsbnry.

3½ h.p. Brown, magneto, new December, all accessories, adjustable pulley; £34, as new.—68, Wellington Rd., Stockport.

PHELON and Moore, 3½h.p., 1909 model, new May, splendid condition, non-skid tyres, suitable for sidecar; 39 guineas.—Moss, Wem.

REX Lightweight, October, 1908, magneto, Amac, lamp, etc., complete, perfect condition; best offer.—Rathbone, Derbyshire Lane, Stretford.

TWIN Rex de Luxe, magneto, very fast and silent, perfect condition throughout, and most reliable, new Continentals; cheap at £30, sacrifice £20.—27, French St., Derby.

LOOK!—Going abroad. £10; 3½h.p. Minerva, Brown-Barlow, handle-bar control, new tyres, stand, carrier, foot brake, rests, very low; trial.—Smyth, Greenfields, Huxley, Chester.

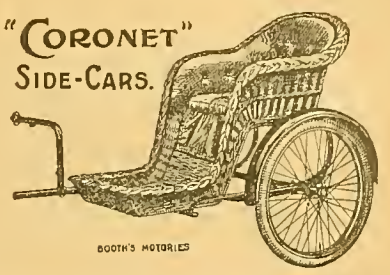
8 h.p. Twin Minerva, spring forks, all controlled from handle-bar, very powerful, equal to new; 29 guineas; guaranteed perfect; approval, or exchange lower power, with cash.—Hallam, Baths, George St., Buxton.

FIRST Cheque for £6 10s. secures 3½h.p. Minerva, Watawata, two brakes, stand and carrier, long and low, swan-neck seat-pillar, very fast, and guaranteed perfect, Dunlops; worth £12 12s.—Short, Spread Eagle Yard, Chesterfield.

3½ h.p. Birmingham Quadrant, just overhauled, enamelled, and rebushed, 1909 Bosch, Whittle h.b. Amac, new non-skid, guaranteed perfect running order, low frame, getting higher powered machine; 19 guineas.—Williams, High St., Ludlow.

DOUGLAS, July, 1909, Palmer cords, Watawata, and spare belts, 28 guineas; Minerva, 4½h.p., twin, full equipment, £22; 3½h.p. Vindec Special, magneto, Truffault, like new, £20; lightweight Minerva, 2½h.p., low, splendid goer, £10.—Sugden, Douglas agent, Alfreton.

NORTON, 5h.p., twin, new November, not done 200 miles, makers willing to give full guarantee to purchaser, Lucas projector, generator, horn, valves, plugs, fasteners, watch and clip, waterproof coat; written guarantee given; cost with accessories £65, nearest £40.—C. Rice-Oxley, Meole, Shrewsbury.



We maintain the "Coronet" is the BEST DESIGNED SIDECAR on the Market.

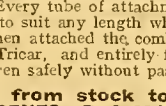
Free from Side-slip.—The "Coronet" Sidecar is attached in three places, the front down tube, bottom stay, and saddle bolt, and can be detached in three minutes. Every tube of attachment is telescopical and adjustable to suit any length wheelbase, any height or width. When attached the combination is as firm and rigid as a Tricar, and entirely free from side-slip, and can be driven safely without passenger if desired.

Delivery from stock to suit TRIUMPHS, REXES, P. & M.'s, N.S.U.'s.

Price £4 17s. 6d. Discount to trade.

CORONET ADJUSTABLE PULLEY.

12/6



The best variable speed pulley on the market. Loose flange securely held in any position by a simple yet ingenious contrivance. Gear can be altered without the aid of spanners, lock ring easily operated by hand. Buy a "Coronet" pulley and gear your machine suitable for hill-climbing.

Standard makes, such as Rexes, Triumphs, Minervas, supplied without the necessity of sending old pulley for pattern. **Discount to trade.**

"GRIPSKIN" BELTING.

Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

⅝in., **10d.**; ¾in., **11d.**; ⅞in., **1/1**; 1in., **1/2.**

Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

Clincher Covers: 26in. or 28×2in., 2¼in., 2¼in., **16/6.**

Dunlop Covers: 26×2in., **15/6**; 26×2¼in., **17/6**; 28×2¼in. or 2¼in., **15/6.**

28×2in. Dunlop Covers: Beaded, **14/6**; Wired, **10/6.**

24×2¼in. Clipper-Reflex, heavy treads, **12/6**; ditto tubes, **4/-**

Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from **59/6** Your old coil and acc. taken in exchange.

CARBURETTERS.

BROWN AND BARLOW. AMAC.

Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters.

OLD CARBURETTERS BOUGHT.

MISCELLANEOUS.

De Dion Car Frame, wheels, differential	£3 10s.
New Water-cooled Cylinder M.O.V., 81 mm. bore	19/6
Six good Plain Coils ..... each	3/3
Dozen good Trembler Coils ..... each	7/6
Mudguards and Stays 3in., 2/11, 4in.,	3/6
Silent Silencers for engines to 5 h.p.	3/3
Long Handle-bars, well plated	5/6 and 6/6
500 Fuller Midget Trembler Coils	17/6
200 Fuller Plain Coils (your old coil taken in exchange)	10/6
250 Mirror Lens Lamps, with generators	14/9
50 Pairs New X'lall Spring Forks, latest	15/-
Longuemare, Minerva, F.N. carburetters .... each	5/6
Osborne Four-speed Gear, ...	35/-
Albion Free Engine Clutch, ...	29/-
Amac and B. & B. carburetters	7/6
Good Forecarriage, complete, with tyres.....	£2 19s.
Light Car Frame, with springs and wheels	£2 10s.
Norman Two-speed Gear, nearly new	£2 5s.
New Twin Antoine Cylinder.....	20/-
New Amac Carburetter, handle-bar control	17/6
Second-hand pair XL'All or Matchless Spring Forks	9/6
De Dion Two-speed Gear Fox, nearly new	£2 5s.
Low tension Magneto suit car	27/6
New Pistons, 81 mm. diam.....	3/9

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), HALIFAX.
Telephone 1062.

MAUDES' MOTOR MART

HALIFAX AND LONDON

Earliest Possible Deliveries of any 1910 Models.

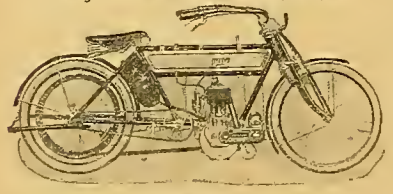
Sole Yorkshire Agents for the T.A.C. Motor Cycle de Luxe.
Sole London Agents for the NORTON.
Sole Halifax Agents for TRIUMPHS, DOUGLAS, PHELON MOORES, BRADBURYS, etc., etc.

Every 1910 model we sell or offer for sale carries the makers' full guarantee regardless of whether sold for cash or exchange.

TRIUMPH

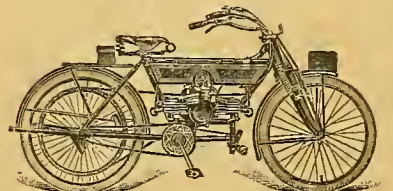
1910 TRIUMPH.

Standard model.. .. .. £48 15
Tourist Trophy model £50 0
Free engine £6 6s. extra. Earliest deliveries.



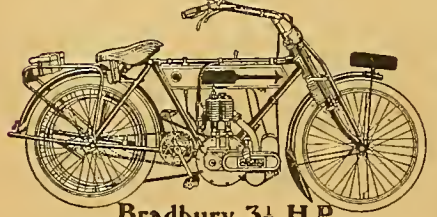
NORTON.

3½ h.p. single cylinder.. .. .. .. 43 gns.
4½ h.p. single cylinder .. .. .. 45 „
5 h.p. twin cylinder .. .. 53 „



DOUGLAS.

Model B.. .. .. 36 gns.
Model C.. .. .. 38 „



Bradbury 3½ H.P.

1910 Standard model £46 0
Delivery from Stock.

T.A.C. Motor Cycle de Luxe.
Wheel or handle-bar steering, 65 gns.
Discount to cash buyers.
"V. S."—5 h.p., £55; 7 h.p., £57; 3½ h.p., £49.
Two-speed gear £10 extra.
MOTO-REVE.—1½ h.p., 27 gns.; 2 h.p., 36 gns.
Delivery from Stock.
F.N.—2½ h.p., two-speed, £40; 6 h.p., four-cylinder, £50.
PREMIER.—3½ h.p. single, £47 10s.; 3½ h.p. twin, £52.

LISTS POST FREE FROM

MAUDES' MOTOR MART,
Powell Street, HALIFAX.
'Phone: 433. Telegrams: "Petrol, Halifax."
136, Great Portland Street, LONDON, W.
'Phone: 552. Mayfair. Telegrams: "Abdicate, London."

MOTOR BICYCLES FOR SALE
SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

1910 Triumph Motor Cycles in stock.—Stamford Garage, Stamford.

1909 Bradbury, new June last; £28, no offers.—Morris, Bridge Inn, Retford.

2¼h.p. F.N., belt drive, all accessories, splendid condition.—3, Northgate, Sleaford.

1909 Triumph, run 1,200 miles, in excellent order; £37.—Wilkin, Welholme Rd., Grimsby.

TRIUMPH, 1909, standard, guaranteed perfect; £35 no offers.—169, Station Rd., Long Eaton.

1909 3½h.p. Rex, brand new; sell best offer; entertain exchange.—22, Victoria Terrace, Leamington.

F.N., 4-cyl., perfect condition, h.b. control, long footboards; £22.—Clark, 48, Bridgegate, Retford.

N.S.U. 3½h.p. Cycle, magneto, adjustable pulley; £15 in good order.—L. Horton, The Firs, Smethwick.

1909 Triumph, new in August, in good condition; a bargain, £35, no offers.—Ward, 47, Bradford St. Coventry.

TRIUMPH, 1908, 1909 engine, perfect condition, new tyre, etc.; £31.—59, Willows Crescent, Cannon Hill, Birmingham.

3h.p. Lincoln Elk, in perfect condition, low, fast, and reliable; genuine bargain, £12; approval willingly.—B. Morris, Bourne.

3½h.p. Wolf, new condition, guaranteed perfect order; £15; exchange with cash for magneto.—Kenworthy, Walpole, Wisbech.

TRIUMPH, Rex, Minerva, Excelsior motors, new and second-hand; send for weekly list.—The Victoria Garage and Electrical Co., Ltd., Coventry.

1909½ Bradbury, 3½h.p., Mabon clutch, new February 18th, 1910; selling through heart failure; £36, no offers.—Marshall, Old Bridge Inn, Retford.

BROWN, 2¾h.p., in splendid order, just bored out to 3h.p., new Dunlop tyre, 2¼ back; £12, or near offers.—E. Porter, Scredington, Folkingham.

DOUGLAS, 1910 models, in stock, complete with lamp horn, and accessories; 38 guineas.—Norton and Sons, ironmongers, Smithford St., Coventry.

ROC, 4h.p., magneto, Amac carburetter, h.b.c., adjustable pulley, free engine, handle starting; £24, cheap.—Stevenson, Edgbaston House, Broad St., Birmingham.

HUMBER Motor Cycle, belt driven, 26in. wheels, Longuemare carburetter, trembler coil, low position, perfect; £6.—282, Garrison Lane, Small Heath, Birmingham.

SEVERAL 5½h.p. Twin Rexes, spring forks, aluminium finish, blue lining, real sidecar machines; £16 10s. each.—C.C.R. Motor Wks., Ford St., St. Anns Well Rd. Nottingham.

MOTOR Cycle, 2¾h.p. F.N., perfect machine, very little used, non-skid studded tyres, footboards, etc.; accept £12.—Pork Butcher, 132, Green Lane, Small Heath Birmingham.

3½h.p., M.M.C. engine, very low, h.b. control, footboards, Advance adjustable, Palmer Cord and Clincher, new Gradior piston and rings; £10.—Alpha, 8 Shaftesbury Rd., Earlsdon, Coventry.

3½h.p. Minerva, magneto, spring forks, B. and B. handle-bar control (new) Palmer cord back (new), lamp, tools, etc., first-class order, ride 30 miles to purchaser; £21, or offer.—74, Bridgford Rd., Nottingham.

PREMIER, 3½h.p., late 1909 absolutely new condition, complete, lamp, horn, spares, £32 10s.; Humbers, latest, two-speed and single speed, also Ariel and Premier models; immediate delivery; liberal allowances.—Evans, Agent, Sparkhill, Birmingham.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

LADY'S Singer Motor Cycle, magneto, in grand order and condition; 10s., or offer.—3a, Bridge St., Cambridge.

2½h.p. J.A.P., B100, light, low, fast, splendid condition; £8.—G. Emmerson, 149, George St., Hadleigh, Suffolk.

WHAT Make Motor Bicycle do you fancy? We can supply and give early deliveries. We have actually in stock new Triumphs, Premiers, and Bradburys, cash or instalments.—Parker and Son, St. Ives, Hunts.

1910 Douglas, Roc two-speed gear, free engine, hand starting, Jones speedometer, Watawata belt, horn, spares; cost £58 end January; only done 300 miles; cash offers; bought sidecar reason sale.—W. Hazelwood, Lower Hare Park, Newmarket.

2¾h.p. De Dion, Chater-Lea, Palmers, spring forks, seat-pillar, £7 10s.; 2¾h.p. J.A.P. motor, new back cover, new Continental belt, £6 10s.; 3½h.p. M.M.C., Chater-Lea No. 6, Longuemare, Gloria belt, two accumulators, £10; 3½h.p. Triumph, Bosch magneto, 1910 Amac, adjustable jet, everything new, £25.—Riddelsdell, Hadleigh, Suffolk.

MAUDES' MOTOR MART

HALIFAX AND LONDON

Before buying, send for our lists. We can guarantee to save you money on any motor cycle, new or second-hand. Our terms are most liberal and fair.
List of second-hand machines for disposal—cash, exchange, or deferred payments.

LONDON STOCK.

REX 3½ h.p., 1908 model, two speeds, Bosch magneto. A beauty .. £24
MINERVA 3½ h.p., magneto, spring forks. Good running order .. £20
N.S.U. 4 h.p., twin-cylinder, 24in. wheels, Mabon free engine, magneto, 1908 model .. £25
TRIUMPH 3½ h.p., brand new, 1909 model, spring forks, magneto .. £41
BROWN 2¾ h.p., magneto, low saddle position, good tyres .. £16
N.S.U. 3½ h.p. model, magneto, low, long bars. Clear at .. £11
SINGER 3 h.p., vertical engine, magneto; cost over 50 gns.; accept for cash .. £14
CLYDE 2¾ h.p., vertical engine, magneto, good tyres £14
CELECOM 4 h.p., Phœnix two speeds, very good tyres, spring forks and seat .. £11
ANTOINE 4 h.p., vertical, M.O.V., very low and long, free engine, 26in. wheels, good tyres. A bargain £11
WHITE AND POPPE 3½ h.p., vertical. A bonny mount. Low built .. £14
ZENITH 3 h.p. Bicar, sprung both wheels, two speeds, very low .. £20
MINERVA 3½ h.p., 26in. wheels, low built, free engine. Good sound order .. £10

HALIFAX STOCK.

N.S.U. 3½ h.p., 2½in. tyres, spring forks, variable pulley £1
TRIUMPH 3 h.p., spring forks, Amac carb., handle-bar control, very fine order .. £1
QUADRANT 3½ h.p., 26in. wheels, spring forks, very good puller .. £1
HAMILTON 4 h.p., Amac carb., handle-bar control, 26in. wheels, As condition .. £1
N.S.U. 3½ h.p., magneto, handle-bar control, Roc two speeds, very low .. £2
PEUGEOT 4 h.p., twin, low position .. £15 1
ARIEL 3½ h.p., B. and B. carb., low built .. £14 1
FAIRY 2 h.p., low, ideal lightweight .. £12 1
MINERVA 3½ h.p., good tyres, low built .. £12 1
CLARENDON 3 h.p., M.O.V., accumulator ignition £14 1
EXCELSIOR 3 h.p., grey finish, good puller .. £10 1
N.S.U. 1¾ h.p. Lightweight, magneto .. £16 1
TRIUMPH 3 h.p., magneto, low built .. £19 1
MINERVA 3½ h.p., Longuemare carb., good tyres £16 1
MINERVA 2¾ h.p., B. and B. carb., M.O.V. .. £14 1

Exchanges, Deferred Payments, or close Cash offers.

£5/- down secures

MADISON 1¾ h.p., spray .. £6
QUADRANT 2 h.p., low, good tyres .. £8
BARTER 3 h.p., spray, long bars .. £9
DURKOPP 2¼ h.p., good tyres .. £10 1
BROWN 2 h.p., good little mount .. £10 1
HUMBER 2¾ h.p., chain drive .. £10 1
EXCELSIOR 2¾ h.p., long bars .. £10 1
BRADBURY, 2¾ h.p. Fine goer .. £9
MINERVA, 1½ h.p. Good faithful slave .. £7
MINERVA, M.O.V. 2¾ h.p. .. £11
MINERVA, A.O.I.V. 2¾ h.p. .. £9
W. and P., 3½ h.p., Mabon clutch .. £14

All in good running order. Balance 5/- weekly

N.S.U. MOTOR CYCLES. N.S.U

We have still a few N.S.U.'s to clear at exceptional low prices, as below—

	Cash.	Deferred Payments.	List Prices.
Five 3 h.p.	£25	—	£39
Two 3½ h.p.	£31	£33	£42
Two 5½ h.p.	£37	£39	£52

All brand new and perfect, and fitted with Magneto. Fullest particulars upon request.

Send for our lists of **Accessories and of Second-hand Motor Cycles.** We guarantee to save you money.

TRICARS AND CARS

PRUNEL Car, 20 h.p., side entrance, four cylinder, four speeds. Bang up to date. Clear at £130.
PHŒNIX Car, 8 h.p., two cylinder, two speeds, two seater, good tyres. £42.
REXETTE Tricar, 5½ h.p., two speeds open frame, water cooled, very good condition. £32.
QUADRANT Tricar, 5½ h.p., two speeds, open frame, air cooled. £15.
HUBBARD Tricar, 5½ h.p., water cooled, two speed Chater-Lea gear box, perfectly sound. £26.

Every machine guaranteed in sound running order before delivery.

MAUDES' MOTOR MART,

136, Gt. Portland St. (off Oxford Circus), **LONDON, W.**
Tele {grams: 'Abdicate, London. phone: 552 Mayfair.

Powell St. (behind Victoria Hall), **HALIFAX**
Tele {grams: 'Petrol, Halifax. phone: 433 National.

OTOR BICYCLES FOR SALE.

) 5h.p. Sarolea, No. 6 frame, h.b. Amac, 2½in. tyres, 27in. high, new, unfinished; best offer, hange.—74, Croydon Rd., Beckenham.

'ou Want Bargains in second-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, St., London (just off Ludgate Circus).

'AN, 1910, 5h.p., twin, new few weeks back, carcely ridden; selling through financial reasons £45.—110, Clonmore St., Southfields, S.W.

N Vindec, magneto, Truffault spring forks, £20, erfect order; 2½h.p. Minerva, very low, good going £5, bargain.—57, Park Rd., West Dulwich.

9 Rex, 5-6h.p., B. and B. carburetter, 2½ Dunlop, not ridden 200 miles, as new, many extras, spares, 29.—F., 1, Fieldsway House, Highbury Crescent.

0 Triumph, Premier, F.N., and Moto-Reve; instant delivery; best prices in exchange; send parts.—Batchelor and Co., Clarence St., Kingston.

p. Minerva Twin, spring forks, two accumulators, Watawata, trembler coil, first-class condition; 19 s.—88, Shepherd's Bush Rd., Hammersmith.

9 2½h.p. Lightweight twin N.S.U., as new, bought last September; 29 guineas.—Crook, Sunderland Ashchurch Park Villas, Ravenscourt Park, W.

Twin Antoine, just delivered from makers, unsed, Chater No. 6, h.b. control, 26 by 2½ Palmers; Os.—Hairdressers, 59, Barking Rd., Canning Town.

9 Triumph, lamp, horn, spares, Palmer tyres, run nbout 500 miles, as new; any trial; £35, no -Motor, Wallace Lodge, Chadwell Heath, Essex.

p. J.A.P., handle-bar control, fast, very reliable, new belt, stand, new back cover; only wants seerifice £7 10s.—12, Market Sq., Horsham, Sussex.

p. Chater-Lea, in excellent condition, complete with accessories; cash £14 for quick sale; also riage, less tyres, cheap.—Briggs, Silver Band, Crowh.

DEC Special, 5h.p., twin, Truffault forks, magneto, adjustable pulley, excellent machine, in sound conaccept £24, bargain.—Dickson, Croft, Northwood, sex.

p. Low Chater-Minerva Lightweight, new Continental, Ducoflex, practically new engine, most rebargain, £6 15s.—Remington, Chalet, Sanderstead, n.

9 Humber, 3½h.p., Roc two-speed, go anywhere, accessories, and spares, in splendid condition; Os.—Thomas, 38, Ashchurch Park Villas, Shep-Bush.

p. Fafoir, 1908, No. 6 low Chater frame and fittings, Palmers, Brooks, Whittle, long bars, splenondition; bargain, £15; evenings.—130, Dalston Hackney.

p. Hobart, 1909 b.b.c. Amac, plain coil, dry batteries, stand, carrier, pump, spare belt and tube, good climber, fast; £10; trial given near cock, Kent.—No. 4,192, *The Motor Cycle* Offices, dor St., E.C.

Antoine, low, powerful, long handle-bars, good ondition, 15 guineas; also lady's Hudson cycle, will ensure satisfaction.—Hutchinson, 35, Allen coke Newington.

PHANT Motor Mart.—1¾h.p. Minerva engine, fitted with two-speed gear, and free, chain drive, etter, pipes, and silencer, new condition, make ightweight; 5 guineas.

PHANT.—Full value allowed on machines towards ayment for the Coventry built 1910 Arno at £45, with every refinement.

PHANT.—Motor cycles from £4; tricars, £12; ars, £25; sidecars, £3 10s.; headlights, with separerators, 16s.; adjustable pulleys, 7s. 6d.; 15 amp. eccumulators, 7s. 6d.; bucket seats, 5s. and 30s.; etters, 7s. 6d.; new clearance covers, from 12s. 6d.; 5s.

PHANT.—We specialise in motor cycles and fitments, new and second-hand; state requirements.—nt Rd., London.

JMPH and Moto-Reve, 1909, new June and July, idden 1900 and 800 miles, searchlight lamp, acies, like new; £35 and £28.—53, Kingsley Av., Ealing, London.

p. Vindec Special, spring forks, Bosch, h.b. control, Dermatine, adjust. pulley, horn, toolbag; exchange with cash for 3½h.p. Minerva.—Dawson, 4, orpe Rd., Putney.

9 5h.p. Twin Rex Tourist, cantilever seat, R.O.M. tyres, not ridden 100 miles, practically new, lamp, pares; price £28, or offers.—Redland House, Carshalton Rd., Sutton, Surrey.

MENT-GARRARD, 2½h.p., modern vertical engine, splendid order and condition; £12, or near offer; trial by appointment.—Austin Smith, 22, me Rd., Forest Hill, S.E.

GAIN.—New 1909 Twin Rex de Luxe, two speeds, 1910 improvements, carburetter, handlearrier, etc., uncrated; 40 guineas nett, no offers.—Ionth Lambeth Rd., London.

GAIN.—3½h.p. Quadrant, magneto, spring forks otrests, Mahon free engine clutch, Palmer cords, -bushed, like new; £28.—Can be seen any time at auxhall Bridge Rd., Victoria, S.W.

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1909 TRIUMPH, 3½ h.p., magneto, spring forks, handle-bar control, extra good £33 10

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3½ h.p. P & M., magneto, two-speed, spring forks, good condition, low cash bargain £31 0

1908 Racing REX, 24in. wheels, exceptionally low, yet comfortable, has done 60 m.p.h. on Brooklands. Called 3½ horse..... £30 0

1908 5½ h.p. TWIN REX DE LUXE, with Roc clutch, magneto, handle starting, rider sprung front and rear, a good mount for sidecar £29 10

1908 TWIN TOURIST REX, 26in. wheels, spring forks easy starter, Bosch magneto, stand and carrier £27 0

ROC, 4 h.p., vertical engine, h.-b. control, magneto, clutch, rubber-studded tyres to both wheels, very low and good £23 0

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MOTO-REVE TWIN, 2 h.p., spring forks, magneto, footrests, low, easy starter, good condition £19 19

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BRADBURY, 2¾ h.p., vertical, new tyre, girders, spray, V belt, cheap and good £10 0

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REX, 3¼ h.p., the John-o'-Groat's model, 22in. frame, an orphan who requires a good home for £9 10

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BAT, 3¼-4h.p., very reliable tyres, enamel, plating excellent, engine just overhauled, as new; £15; or exchange with cash for 3½h.p. magneto Triumph, similar condition.—7, Palatine Rd., Stoke Newington.

1910 Triumphs, Rex, P. and M., Douglas, Kerry, Abingdons, etc., in stock at the Eastern Garage Co.'s depot at 418, Romford Rd, Forest Gate. We shall be pleased to quote allowances for second-hand machines. The following are thoroughly reliable:

1909 Triumphs, with first-class accessories; £34 each.—Below.

1908 Triumph, lamp, generator, horo, etc., guaranteed perfect; £28.—Below.

1909 Tourist Rexes, 3½h.p., complete with accessories; £28 each.—Below.

1908 Rex, 3½h.p., T.T. engine, magneto, spring forks, rubber studded tyre, all accessories and tools, a splendid machine; £20.—Below.

1909 F.N., 4-cyl., new last June, F.N. footrests, h.b. control, R.O.M. combination tyre, with nearly new sidecar; £35.—Below.

1908 Roc, 4h.p., military model, two-speed gear and free engine, Bosch magneto, h.b. control, new R.O.M combination tyre, appearance and condition perfect; £25.—Below.

1909 Peugeot, 5h.p., Chater, adjustable pulley, R.O.M and Palmer cord covers, Davison's gauges and fillers, F.R.S. lamp, etc.; £20.—Below.

1908 Peugeot, 5h.p., No. 6 Chater frame, Bosch magneto, B. and B. carburetter, h.b. controlled, torpedo tank, Brooks saddle, very low; £17.—Below.

1909 Minerva, 4½h.p., twin, magneto, spring forks, Roc two-speed and clutch, Amac carburetter, 2½in. Palmer cord tyres, numerous refinements, ideal machine for sidecar; £33.—Below

1909 Minerva, 3½h.p., magneto, spring forks, Amac carburetter, entire handle-bar control, several special fittings, grey finish, good as new; £26.—Below.

1906 Minerva, 2¾h.p., Bowden h.b. control, low built, perfect order guaranteed; £12.—Below.

1907 (late) Vindec Special, 5h.p., Truffault forks, Bosch magneto, h.b. control, adjustable pulley, tyres (R.O.M. back) and belt nearly new, enamel and plating excellent; £23.—Below.

THE Eastern Garage Co. have, in addition to the above, a number of good machines at prices ranging from £7. Please favour us with a visit at 418, Romford Rd., Forest Gate, or telephone, Stratford 10. Telegrams, Egaraco, London.

1909½ Ariel, 3½h.p., magneto, h.b. control, B.B. carburetter, very fast, not ridden 600 miles; giving up riding; £20, cost £41; a bargain; condition as new; trial arranged.—Lock, Shenley Rd., Boreham Wood.

2¾h.p. Brown, good order throughout, tyres good, new Lithanode, trembler coil, B100, T.B. seat-pillar, long bars, L.A.C. spring fork attachments, Matchless stand, gas lamp, toolbag, etc., very flexible; £10 10s.—Motor, 110, Sunny Hill Rd., Streatham.

3½h.p. Kerry, handle-bar control, footboards, long handle-bars, low position, handle starting, fast, and reliable, fine sidecar machine, all accessories, numbers; sacrifice £12, or exchange lower power and cash adjustment.—12, Market Sq., Horsham, Sussex.

1¾h.p. Max Lightweight, vertical, Zedel engine, Bosch high tension magneto, 18 by 2 Palmer cords, handle-bar control, aluminium footboards, and stand, spare cord cover, new condition throughout; bargain, 10 guineas.—Wills, 130, Walworth Rd., London.

3½h.p. Minerva, B.B. carburetter, handle-bar control French grey, low, new rubber studded back, Bates non-skid front tyres, new Michelin tube, Mahon clutch, two pulleys, Dermatine, spring forks, accessories, splendid condition; £16.—Beeching, 20, Oldhill St., Stamford Hill.

1909 No. 4 Bat-J.A.P., 6-7h.p., J.A.P. carburetter, luggage carrier, patent stand, rubber studded 2in back tyre, Riches detachable tube, Model de Course, Continental 2in. front tyre; cost £65 10s.; ridden about 300 miles, perfect new condition; accept £45.—T. N Burberry, 16, Golden Sq., London.

REX Twin, two-speed, late 1909, not run 700 miles, grand condition, over £10 accessories, etc., complete with instantaneously attachable Montgomery sidecar, no faults, this desirable speedy combination complete (machine only used by owner), £50 (Kingston-on-Thames).—Box No. 1,572, *The Motor Cycle* Offices, 20, Tudor St., E.C.

5-6h.p. Twin Peugeot, genuine Chater-Lea frame throughout, spring forks, stand, and carrier, Bosch magneto, handle-bar control, Advance adjustable pulley, Dunlop non-skid tyre, Autoclipse lamp, a perfect machine for solo or sidecar, in brand new condition, only ridden few times; bought car; cost £55, accept £35.—294, Kennington Park Rd., S.E.

BARGAINS for Easter.—8h.p. Minerva, £25; 4½h.p Minerva, £19; forecar for either machine, £4; 1¾ h.p. magneto F.N. lightweight, £19; Motosacoche, £16; Rover forecar, £17; 3h.p. Quadrant, vertical engine, low frame, £11; 8h.p. Buchet pacing motor, £33; sidecar, £4.—Seen at, or further particulars from, Cripps Cycle and Motor Co., 24-28, Woodford Rd., Forest Gate, London, E. Tel.: 75 Stratford.

MOTOR BICYCLES FOR SALE.

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

TRIUMPH and Motosacoche, 1910 models in stock, cash, exchange, deferred payments.—Dan Guy, Weymouth.

2h.p. Motor Cycle, Fuller coil, new accumulator, new tyres, lamp, all in thorough order; £10.—Comer, Police Station, Clevedon, Somerset.

L.M.C., 3½h.p., condition as new, watch, all spares and accessories; £25.—Hawkins, Electricity Wks., Newquay.

3½h.p. Quadrant, spring forks, 1908, accumulator, Shamrock back and Palmer front tyre, butt-ended tubes, Shamrock and Watawata belt; £17. Chowne, Southcombe, Crewkerne.

SECTION X.

Scotland.

LIGHT Quadrant, forecar, two-speed, fan, new tyres, B. and B., fine order; £15; or exchange 4h.p. single.—Reive, Old Cumnock.

F.N., 1910, two-speed, lightweight; immediate delivery from stock; catalogues post free.—Rossleigh, Ltd., 32, Shandwick Place, Edinburgh.

TRIUMPHS, 1910 standard, or free engine models; immediate delivery from stock; catalogues post free.—Rossleigh, Ltd., 32, Shandwick Place, Edinburgh.

SCOTLAND'S Largest Motor Cycle Firm.—Rex, V.S. Indian, Moto-Reve, Phelon and Moore, Zenith, Douglas, Roc, Griffon; we stock all these, and can supply any other make.—Alexander's Motor Exchange, Lothian Rd., Edinburgh.

TWIN 4½h.p. Chater-Lea-Minerva, Bosch magneto, B. and B. carburetter, R.O.M. tyre, silent and powerful; £28.—Deans, Mount Annan Drive, Glasgow.

SECTION XI.

Ireland and Isle of Man.

TRIUMPH, 1909, 3½h.p., as new, magneto, Bosch plug, Shamrock-Gloria belt, Palmer cords both wheels, not ridden 500 miles, tools, absolutely reliable; price £38; owner buying small car.—Robert Bell, Grosvenor, Carlow.

TRICARS FOR SALE.

PULLMAN'S.—Aster tricar, 6½h.p., water-cooled, two-speed; £25.

PULLMAN'S.—Wolf tricar, 4½h.p., w.c., two-speed; £20.

PULLMAN'S.—Steven's Tricar, 4½h.p., w.c., two-speed; £20.

PULLMAN'S.—Quadrant tricar, 5h.p., twin, two-speed; £22.

PULLMAN Bros., London Rd., Norbury, London.

3½h.p. Rover Tricar, in good order; any trial; £12 10s.—3a, Bridge St., Cambridge.

9h.p. Riley Tricar, speedometer, lamps, jack, etc.; £55.—Ronald Douglas, Broughty Ferry.

N.S.U. Tricar, 4h.p. twin, magneto, two-speed, good condition; £22.—52, Perry Hill, Catford.

9h.p. Riley Tricar, re-painted and overhauled, splendid machine.—W., Elms House, Hammersmith.

ROVER, 4½h.p., two speeds, free-wheel, steering, spares, fine condition; £20.—Rabson, Market Parade, Balham.

3½h.p. Tricar, free engine, two-speed, splendid condition; £20; coach-built.—74, Lady Margaret Rd., Tufnell Park, N.

9h.p. Tricar, three speeds and reverse, car tyres, spares, lamps, etc.; £50, motor cycle part payment.—785, High Rd., Leytonstone.

3½h.p. Raleighette, water-cooled, two speeds, Renolds chains, excellent condition; £26.—Henshaw, wheelwright, Stockport.

LIGHT Tricar, 3½-3¾h.p. Rex, Phelon-Moore two-speed, good condition; £15; buying sidecar.—1a, Hanover St., Peckham. 'Phone, Hop 2200.

6h.p. Rexette, in first-class order, complete outfit for same; £32, bargain; seen by appointment.—Green, 147, Pembroke Rd., New Southgate, London, N.

5½h.p. Rex Triette, Osborne four-speed, Whittle belt, Amac carburetter, h.b. control; accept £21, or exchange lightweight.—56, Kingston Rd., Teddington.

LIGHT Racy Tricar, buckets, low, raked wheel steering, tyres like new, ready for touring; bargain, £38, or near.—Particulars, Emms, 2, Farnaby Rd., Shortlands.

3½-4h.p. Minerva Tricar, two speeds, £20; also 2h.p. Minerva motor cycle, Bowden lift, £6 10s.; both good condition; must sell; offers.—136, Lambeth Walk, London.

6h.p. Clement-Garrard Tricar, shaft driven, three-speed gearbox, large clutch, heavy Dunlop tyres, luxuriant forecar, in perfect running order; give trial run, £20, all accessories.—210, Old Montague St., London, E.

3½-4½h.p. Spring Frame Phœnix Trimo, two speeds and free, chain drive, Amac, Clincher studded front, R.O.M. back, coach-built, new condition; £22 10s., or good lightweight and cash.—Webster, 159, Queen's Rd., Dalston, N.E.

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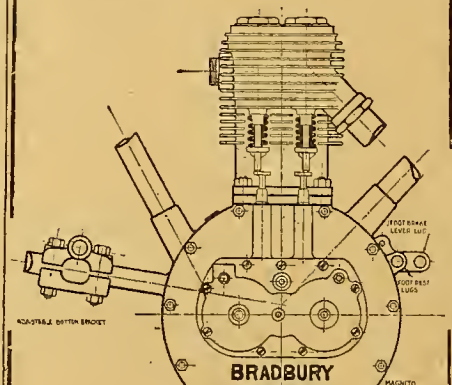

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MY Perfect 5½h.p. Rexette Tricar, water-cooled, w. steering, green upholstered; £25, or exchange motor bike and cash.—A. Beasley, 15, Chesshire Hinckley.

RALEIGHETTE Tricar, 3½h.p., two speeds, clu water-cooled engine, spare parts, good tyres, sp did bargain; £15.—Blease, Elmsley Rd., Mossley I Liverpool.

LIGHT Tricar, Bosch magneto, Roc clutch, two spe 5½h.p. twin Rex, new last July, perfect runn order; 39 guineas, complete.—22, Victoria Terr Leamington.

3½h.p. Humber Tricar, convertible, chain drive, w new back hub, engine, etc., in good order; or exchange lower power and cash.—A.G., 136, combe St., Derby.

6h.p. Double-cyl. Wolfe Tricar, water-cooled, 3 speeds, coach-built body, just repainted, spler order throughout, large tyres; sacrifice to clear, £3 Taylor's Garage, King's Lynn.

PHŒNIX Trimo, late 1907, open frame, coach-bu wheel steering, 6h.p. twin, two speeds, clutch B den controls, modern luxurious tricar; £28; motor part payment.—48, Walton Rd., East Molesey.

5h.p. Twin Rex Triette, air-cooled engine, Bosch m neto, two speeds, Roc clutch, 1½ belt, specially b July, 1902, engine new in 1909, cane seat, footboa etc.; £38, or nearest offer.—G., 33, Meriden St., Cover

6h.p. Water-cooled Tricar, coach-built, 26 by 2½ ty Mahon clutch, smart, foot band brakes, 3in. b rembler; trial; bargain, £19.—Easten, 17, Bedford E.

LATE 1907 Model 10h.p. 2-Cyl. Rexette, open frame, 3-seater, exceptionally perfect, warrant £29 10s., motor bike part payment.—48, Walton East Molesey.

4½h.p. Phœnix, new bearings, sprockets, gears, lan wing mudguards, 1910 Amac, good as new, 7 days' trial, chain drive; £20, no offers.—61, Deans Hill, Camberwell.

PHŒNIX Trimo, sprung frame, coach-built, speeds and free, Renold chain drive, 4½h.p. mers, fan, spares, headlight, very reliable; any te bargain, £21.—30, Leabridge Rd., Clapton.

CLYDE Tricar, 6h.p., w.c., 2-cyl., two-speed, wh steering, open frame (sprung), perfect condit large luggage capacity, very smart, coach-built; £30 nearest; seen and tried by appointment.—Motorist, Great Queen St., W.C.

5h.p. Riley Tricar, winner 200 miles reliability t challenge cup, gold medal 1909, first-class co tion, run about 1,500 miles, splendid hill-climber; p £45; owner buying car.—King, Walton House, Surbi Rd., Kingston-on-Thames.

SINGER Tricar, 6h.p., twin water-cooled, two spe wheel steering, just spent £40 on overhauling makers, repainted, nickelled, absolutely as new; would take fair offer; trial run; reason selling buy car.—F.L., Oakdale, Horley, Surrey.

REXETTE, 5½h.p., water-cooled, two speeds, torp body, just overhauled spares, tools; bargain, or exchange for two-speed bike and sidecar, cash adj ment; also Humber 3½h.p. tricar, cane front seat, g order, £10.—Comley, Burges, Coventry.

4h.p., Sims water-cooled engine, magneto, three spe shaft drive, large clutch, Palmer cord and Ke shall tyres, commercial box, in addition to large wic chair, the whole in first-class condition and runn order; trial; price £26.—Page, 74, East Hill, Dartfo Kent.

MINERVA Tricar, 3½ to 4h.p., Eadie fittings, bas front, cushioned, Palmers, one rubber studded used, re-plated and enamelled, two accumulators, spares, motor coat, lamp, mirror, rubber and brass ed footboards, splendid bargain, £25.—77, Beulah Rd., W thamstow.

4½h.p. Bradbury Tricar, water-cooled, open fra wheel steering two speeds, chain driven, coa built seats, three lamps and tools, complete, condit as new; cost £95, sell £35; including coach-built for carrying goods to replace front seat.—Hambro Snodland, Kent.

SIDECARS AND FORECARS.

MILLS and Fulford Forecar, perfect, no tyres; 10s.—133, Hurst Grove, Bedford.

MONTGOMERY, flexible, right side, nearly new C tinental; £4.—Firth, Cromer House, Gravese

SIDECAR, good condition, fit any frame; lowest, 15s.—Markham, 91, St. James Rd., Liverpool I London.

RIGID Trafalgar Sidecar, 26in. wheels, upholste wicker, perfect; £3 15s.—Crossley, 25, Clarem Terrace, York.

MILLS-FULFORD Forecar Attachment, excell condition, complete with tyres.—Rogers, Cha Rd., Hendon, N.W.

SIDECARS, £4 17s.; baskets, springs, fittings; tr supplied.—Middleton and Co., Watson St., Newi ton Green, London, N.

SIDECAR, Mills and Fulford, castor wheel; just c £12 12s.; only used twice, as new; £8.—Osw House, Queen Victoria Rd., Coventry.

SIDECAR, brand new, beautifully upholstered, 26 2in. Michelin tyre; bargain, £3 18s. 6d., wo double.—169, Newfoundland Rd., Bristol.

SIDECARS AND FORECARS.

;CIAL 12 Guinea 1910 Sidecar, brand new, and built throughout with genuine Chater-Lea fittings; s.—H. Bert, 9, Gaskell St., Clapham, S.W.

.ENDID Ariel Forecar Attachment, fit any motor, extended side stays to back wheel, fitted corrugated r, two powerful compensating brakes, foot pedal, 21 tyres, as new, art cane carriage, apron, guards, must sell; £5.—Knight, Maypole House, Bexley.

ECARS.—Our £5 10s. are built from Chater-Lea fittings, including hub; our £4 15s. car is built Chater-Lea lugs; all are complete with side strain and mudguard included; second-hands from £3 15s.; while you wait, free.—C. A. Edgar, 123, Holloway London, N.

OT Sidecars, by test the best; our latest model, £4 17s. 6d., complete; is a really high-class pro-n, and must not be confounded with the sidecars l elsewhere; our determination to make the best berate; assemblers compete in price only; appro-deposit; gradual payments.—Manufacturers, Pilot Co., Soho Rd., Birmingham.

LDING Sidecars, will go through any doorway where motor cycle will go without detaching, is tely rigid, more comfortable and convenient than xisting sidecar, grade A, £7 7s.; grade B, £5 7s.; old sidecar converted into folding for £1 17s. 6d.; ary detachable sidecar, £4 5s.—Sole Manufacturers, ew Mona Cycle and Motor Co., Mona Wks., Bar-Grove, Stoke Newington, London N. Garage 166 and 168, High St., Stoke Newington, N. (see repairers.)

SIDECAR COMBINATIONS.

.p. Twin Minerva, sidecar, ridden twice; bargain, £31; exchange 3½h.p. and cash.—395, Strone Rd., r Park.

)9 8h.p. Matchless, two ignitions, speedometer, lamp, etc., Nala two-speed gear, sidecar, Mills-Fulford.—erson, 51, High St., Oxford.

). Chater-Lea-J.A.P. and sidecar, two-speed, chain drive, dual ignition, car tyres, perfect condition; -Toynbee, Hazelwood, Ham Rd., Worthing.

IN Rex de Luxe and sidecar, magneto, Roc clutch, h.b. control, new belt, tyres as new, spares, good ; £21 cash.—Bradley, Abbey Villa, Kirkstall.

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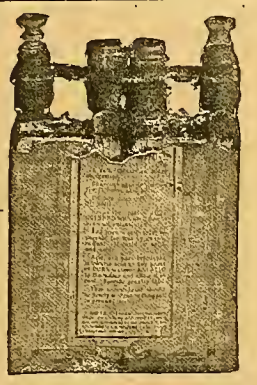

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3½h.p., new condition, for lightweight, Moto-Reve or Douglas preferred, or sell £21; cash adjustment.— Box No. 4,180, *The Motor Cycle* Offices, Coventry.

4h.p. Antoine, Phœnix forecar, in perfect going order, for 6h.p. motor cycle, suitable for pacing, must be fast.—Cole, 8, Midhurst Terrace, West Ealing.

6h.p. Wolseley, fast, good order, Dunlops, nearly new hood, lamps, Stepney, for 1908 or 1909 Triumph and cash.—Inchley, 21, Waterloo St., Birmingham.

LIGHTWEIGHT, spring forks, studded tyre, enamel and plating new, V belt, for cycle and cash, or sell £5, bargain.—Hipkins, 32, Osborne Rd., Leyton.

EXCHANGE Baby Peugeot Car, 6½h.p., screen, canopy, accessories, lamps, etc., excellent condition, for two speed magneto 1909 motor cycle and little cash.—Thomas, Fore St., Tiverton.

6h.p. Stanley Steam Car, in splendid running order; would exchange for motor cycle, about 3½h.p., two speeds, and sidecar, or sell £35. — Howroyd, 54, St. George's Place, Bradford.

WANTED, good Motor Cycle or Tricar, exchange £100 Broadwood superior horizontal grand piano; sell £25; practically new, more value if necessary.—14 Bushey Rd., Harlington, Middlesex.

EXCHANGE 10-12h.p. 2-cyl. car, splendid running order, garaged at The Motor House, London, for high-grade motor cycle and sidecar, or motor cycle and cash, or sell £45.—Pearce, 10, West St., Tavistock.

REXETTE, 5½h.p., water-cooled, two-speed gear, wheel steering, foot clutch, car tyre on back wheel, splendid running order; exchange for good twin and sidecar, or sell £24.—H., 1, The Broadway, Denmark Hill.

DE DION Smart 2-seater Car, in excellent condition throughout, fast, and very reliable; will exchange for 1909 twin Scot, Rex, or Triumph motor cycle, or sell £40.—Red House, Lauriston Rd., South Hackney.

3½h.p. 1908 Triumph, Roc two-speed gear, starting handle, leather covered steel studded back tyre, fine condition, for 4-6h.p. tricar, or car, magneto, chain or gear drive, or sell £32, or near offer.—Whishaw, West Ferry, N.B.

HIGHER power wanted.—Exchange (whole or part 3h.p. M.M.C., low, h.b.c, Amac, apparently new, £14; new three-speed Enfield cycle, £7; new Hobart lady's cycle, £5 10s.; latest gramophone, £4; type- writer, £5.—C/o 8, Orchard Villas, Clayton Rd., Hayes Middlesex.

Immediate Delivery

of 1910 Models. No Waiting.

Write or wire at once for Easter Riding.

I can deliver from stock Triumphs, Scott, 2-stroke F.N., Motosacoche, Moto-Reve, Twin Premier, Lincoln Elk, Humber, 2-speed and single, Douglas. Best of Terms. Cash or Exchange.

To the Man with **£7 10.** to **£12** I shall be pleased to offer—3 and 3½ h.p. Humbers, 3 and 3½ h.p. Quadrants, 2¾ h.p. Zedel, 2¾ h.p. F.N. 3 h.p. Bradbury, 2¾ h.p. Star Griffin, 1¾ F.N., 1¾ h.p. N.S.U., 2¾ h.p. Ariel, 3½ h.p. Singer, and about a dozen more.

To the Man with **£12 10.** to **£16 10.** I can supply—5 h.p. Twin Fafnir, 5 h.p. Twin Minerva, 5 h.p. Twin Peugeot, 5 h.p. Twin Rex, 3½ h.p. Rex, 3½ h.p. Ariel, 3½ h.p. Bradbury, 3½ h.p. Clarendon, 3½ h.p. Excelsior, 3½ h.p. Kerry, 3½ h.p. Quadrant, 3½ h.p. N.S.U., 3½ h.p. Golden Star, 3½ h.p. Singer, 3½ h.p. Vindec Special, and many more.

To the Man with **£18** to **£39** to spend I will supply a modern magneto machine. 3½ h.p. Rex, 5 h.p. Twin Rex, free engine and 2-speeds, 5 h.p. Peugeot, 5 h.p. Twin N.S.U., 5 h.p. Minerva, 3 h.p. Humbers, 2-speeds and single, 1907, 1908, 1909 Triumphs, some with free engine device, Moto-Reve, Motosacoche, 3½ h.p. Quadrant, 3½ h.p Brown, 3 h.p. Quadrant, also others too numerous to mention.

Tricycles, Tricars, Forecars, Rexettes. Have good stock of right stuff to clear cheap to make room for new goods.

Moto-Reves and Montgomery Sidecars. Only 10 out of 50 Moto-Reves, only 6 out of entire stock of Montgomery Sidecars. If you want one hurry up, Specification free.

No reasonable offer refused for any accumulator machine. I must sell as room is valuable. Don't forget me for Belting, leather or rubber, Tyres, Tubes, Carburetters 1909 and 1910, Plugs, Horns, Hooters, Lamps. Remember I am agent for Best of Everything and **my prices are right.**

The Brokery Department. In this I buy and sell all and everything second-hand pertaining to motor cycling, better buy good second-hand in preference to cheap new goods.

Before closing, **remember** my terms are all goods on approval and carriage paid if accepted. Therefore don't buy anything untill you write me for prices. Spring list now ready, send for one; also note my advertisement in *Motor Cycling*. Note name and spelling of same.

C. H. HITCHEN,

Lancashire Motor Exchange, Euston Rd., MORECAMBE.

Telephone: 112.
Telegrams: "Motor, Morecambe."

EXCHANGE.

EXCHANGE one 2½h.p. F.N. motor cycle, handle-bar control, and one second-hand 4½in. by 6in. horizontal steam engine, complete, with governors, both been thoroughly overhauled, for magneto 3½h.p., or over; also Xl'all spring forks, 7s.; New Departure hub, suitable for 3½h.p., 7s. 6d.—Ashfield Engineering Works, Newcastle, Staffs.

WANTED.

WANTED, Carburetter for 3½h.p. Rex (1908). — 3, Station Rd., Ilkeston.

3IN. Belt, leather or rubber, stands.—Godfrey Jones, 4 3 Gloster Place, Swansea.

WANTED, Triumph, sound condition; cheap for cash. —4, Belper Rd., Derby.

WANTED, 3in. belt, good condition; cheap.—8, Bicester Rd., Aylesbury.

BAT Front Forks, also cylindrical trembler coil.—47, Markham Sq., Chelsea, S.W.

TWO-SPEED Gear, good condition, cheap (N.S.U. preferred); also sidecar.—Kirk, Whalley.

WANTED, 1909 Triumph or P. and M.—Full particulars, 46, London Rd., St. Albans.

LEATHER Pants wanted, fit 5ft. 9in.—G. Render, Kirgate, Hangingheaton, Dewsbury.

WANTED, motor cycle, also sidecar, for cash.—Newland, 38, Tantallon Rd., Balham.

TWIN Douglas, 1908-1909, second-hand.—Particulars, G. Mattbies, 76, Battersea Rise, S.W.

FITALL Gear, perfect, complete; cheap.—John Joseph Bullen, Chesterfield Rd., Great Crosby.

TRICAR, reliable, for cash, A.C., or other make; particulars.—Fielding, Buckden, Hunts.

WANTED, four 28 by 2¼ plain tyres, good condition, cheap.—16, Holloway Rd., London.

WANTED, a good 3½h.p. M.C. engine, M.O.V.; cheap —Apply, Cliff, Well Hall, Eltham.

MOTO-REVE, 1908 or 1909; cheap for cash.—H.S., 10, Cavendish Rd., Broadesbury, London.

WANTED, Triumph; state lowest price.—Particulars, John Ewen, London Rd., King's Lynn.

WANTED, good 3½h.p. motor cycle, cash or part exchange cycle.—"Earl's Colne," Cromer.

BACK Hub and Spindle, complete, cheap; also plain coil.—Poyser, Swadlincote, Burton-on-Trent.

WANTED, modern motor cycle; exchange new £16 16s. Golden Sunbeam cycle.—See Exchange.

WANTED, motor bike, reliable, for about £10 cash.—Particulars, Salway, Ambergate, Derbyshire.

FRAME, and 26 by 2 wheels, suitable for vertical lightweight.—Masters, 259, Brockley Rd., London.

1909 Rex Tourist, 3½h.p.; price about £20.—Write, R. J. Brady, 3, Allen St., Canonbury, London.

WANTED, Magneto, single-cyl., Xl'all spring forks; cheap for cash.—S72, High Rd., Tottenham.

1908 Triumph, Roc two-speed gear; lowest for cash.—F. Schlotter, 8, Powerscroft Rd., Lower Clapton.

WANTED, offers for 3h.p. Hobart motor cycle, tyres as new, splendid condition.—133, Hurst Grove, Bedford.

MOTOR Cycle, even if in need of repair; must be cheap.—Jeush, 3, Charles Lane, John's Wood, N.W.

LIGHTWEIGHT, magneto, first-class condition; lowest for cash.—4,191, *The Motor Cycle* Offices, Coventry

WANTED, 5 or 6h.p. Twin water-cooled engine. — Price, particulars to Franklin, 11, Stokes Croft, Bristol.

WANTED, Motor Cycle, exchange magnificent bulldog; sell £12 12s.—James, 87, Brudenell Rd., Leeds.

WANTED, 6h.p. De Dion water-cooled engine, 8h.p., air-coled, cheap for cash.—Phillips, 86, South End, Croydon.

WANTED, pair 26in. by 2in. beaded covers, good condition; cheap for cash.—Bright, 18, Hewell Rd., Redditch.

WANTED, Twin Minerva or Pengeot engine, with plates for No. 6 frame.—R. Barnes, Kingsclere, Newbury.

WANTED, Bat spring frame motor cycle, also Chater No. 6 frame, complete.—Norris, Little Pagehurst, Staplehurst.

WANTED, forecar attachment, complete, 24in. wheels, also two-speed gear.—Amor, Waltham St. Lawrence, Twyford.

BACK Numbers of "The Motor Cycle" required, Nos. 3, 4, 10, 14, 20, 38.—R., *The Motor Cycle* Offices, Coventry.

WANTED, 2½h.p. or 3½h.p., low, compact bicycle, give cash and 1¾h.p. lightweight.—Darke, draper, Sutton, Surrey.

WANTED, 4½-5½h.p. Twin Engine; exchange 4½h.p. De Dion and 4h.p. Stevens.—Colver, Lawson Rd., Sheffield.

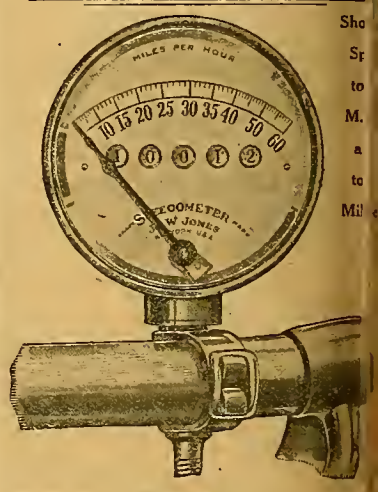
WANTED, Lady's Motor Cycle, 1909 or 1910, 2½h.p. preferred, with free engine.—A.T., 7, Bold St., Liverpool.

HAVE YO SEE

The New JONE

MOTOR CYCLE SPEEDOMET

At 3 Guineas?



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With Trip Mileage in addition .. .. .. 4 guin

And with maximum Speed Hand also.. 5 guin

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Specially desi

Price 12/6

Note—Large substantial constructio

Stronger mechanism, larger and str star wheel, cranked adjustable bra to suit clearance, etc.

Write for literature.

MARKT & CO. (London),

6, City Road, Finsbury, LONDON,

THE MOTOR CYCLE SUPPLEMENT

AUXILIARY EXHAUST RELEASE.

RECOMMENDATION OF "THE MOTOR CYCLE" ADOPTED. THE QUESTION OF STARTERS.

WITH regard to the leaderette in last week's issue criticising the proposition of the Brooklands Automobile Racing Club to rule out machines fitted with drilled cylinders or auxiliary exhaust ports, we are pleased to be in a position to announce that on further consideration the rule appearing in the first sheet announcement respecting the two Easter events has been deleted. In its place the following words will appear: "Entrants must state on the entry forms whether their cycles are fitted with drilled cylinders or auxiliary exhaust ports."

Major F. Lindsay Lloyd asks us to give publicity to the above notice, and incidentally he assures us that the rule referred to was merely a condition which applied to the two Easter events for motor cycles, and to those two races only, and there was no intention of making this a permanent rule. Record attempts or international races, he points out, would always be open to machines fitted with the drilled cylinders; consequently it was unlikely that a permanent rule would be made on the subject.

Should Starters be Barred?

Major F. Lindsay Lloyd, who exhibits a commendable desire to please all, further says: "It would be interesting to know the feelings of motor cyclists on the question of starters. So far we have barred starters, acting on the advice of prominent motor cyclists, but I find that there is a growing feeling that starters should be allowed, especially for the more high-powered machines." Correspondence on this subject would be of interest and great assistance to the B.A.R.C. Of course, should starters be allowed, stringent regulations would have to be made with regard to their leaving the track as soon as the machines had started.

THE 1910 END-TO-END TRIALS.

THE rules governing the Land's End to John-o'-Groat's Six Days' Trials, July 4th to 9th, are now complete.

The route has been altered since it was last published, and the competitors, after leaving Taunton, will go through Bridgwater, Highbridge, Cross, Axbridge, up Cheddar Gorge, through Chew Stoke, Dundry Hill, to Bedminster Bridge, Bristol. From Bristol the old route is to be followed. This alteration is the outcome of a suggestion which lately appeared in the correspondence columns of *The Motor Cycle*.

The time of starting, 8 a.m., and the entrance fees remain the same as in 1908.

Bronze medals will be awarded to each rider who finishes at John-o'-Groat's before midnight on Saturday, July 9th, and who otherwise fulfils the conditions of the trial and does not obtain any other award.

Marks will be awarded in the following proportions:

Reliability	100
Brakes	50
Hill-climbing capabilities	80
Condition of machine during and after trial	100
Accessibility	20
Silencer	20
Condition of tyres at end of trial	50

The minimum time is calculated on a basis of twenty miles an hour; the maximum time eighteen miles per hour.

No repairs are to be done during the luncheon stop.

In order to discourage waiting outside controls any competitor arriving within one mile of the checking station ten minutes or more in advance of schedule time will be penalised ten marks on each occasion.

Each day's run will finish at twelve o'clock midnight. Any competitor not completing the full day's course by this time automatically retires from the trial.

A competitor may stop and make any repairs or adjustments to his machine that may be necessary during the day's run, but there must be no organised assistance. Any replacements, including tyres, must be made from parts actually carried on the machine or person of the rider.

A driver will not be admitted to the storage until thirty minutes before the official starting time, when he may clean his machine and effect any replacements or adjustments.

All important parts of the machine will be sealed, and this year tyres and belts will be branded.

On the evening of the running day when the machines arrive at their destination they must be taken direct to the storage and left in charge of the A.C.U. official by the competitor. No adjustment whatever may be made.

The luncheon stop will be one hour instead of one hour and a half as in 1908. During that period the tanks only may be filled.

From the above alterations it will be seen that the Six Days' Trial is far more strenuous than it was two years ago.

J. Scriven (Rex) and J. Adamson (Triumph) are the latest entries for the Tourist Trophy Race.

H. H. Bowen has entered his Bat-J.A.P. for the End-to-end Six Days' Trial.

A. J. Moorhouse, another of our best known motor cyclists, has joined the Indian tribe, and is on the warpath for the Tourist Trophy.

Six Days' Trials Route Fixed.

The route for the Land's End to John-o'-Groat's Six Days' Trial has now been definitely fixed, and totals about 1,006 miles.

A.C.U. Meeting.

This evening (Monday), at seven o'clock, a meeting will be held at 112, Piccadilly, W., of delegates of the clubs in the Metropolitan centre of the A.C.U.

Next Week

Accessories and equipment will be specially dealt with. The issue will make a timely appearance at this period, when motor cyclists are busy fitting out their new mounts, and others renovating and bringing up to date tried and trusty steeds.

Good News.

H.S.H. Prince Francis of Teck has kindly consented to give away the prizes on the occasion of the British Motor Cycle Racing Club's first meeting of the year, which will take place at Brooklands on the 16th inst.

Open Hill-climb.

A permit has been granted by the A.C.U. to the Herts County A.C. (Motor Cycle Section) to hold an open hill-climb at Aston Hill, Tring, on Saturday, May 7th. This will probably be the first open event of its kind during 1910.

The Motor Cycle Show at Olympia.

The necessary draft agreement is now being drawn up by the Society of Motor Manufacturers and Traders for the occupation of Olympia by the Cycle and Motor Cycle Manufacturers' and Traders' Union, Ltd., next November. We announced some weeks ago that the latter body would hold a cycle and motor cycle exhibition during that month, following the car show.

Brooklands Hill-climbing Certificates.

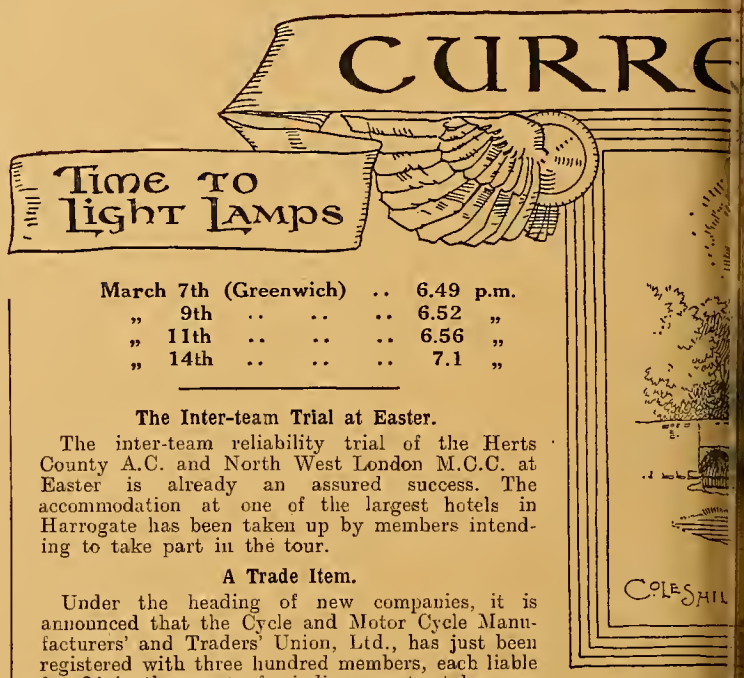
Major F. Lindsay Lloyd is now issuing printed certificates to manufacturers and others for all motor cycles which can climb the Brooklands Test Hill from a standing start. The fee is 2s. 6d. The certificate gives the frame and engine numbers and the gradient of the test hill.

Free Legal Advice.

From the inception of *The Motor Cycle* in 1903 hundreds of our readers have received free legal advice either by letter or through the medium of the "Questions and Replies" columns. This is a feature which has always been embodied with the replies to correspondents, an average of about two hundred of which are dealt with each week from this office. All enquiries of a legal nature are submitted to our legal adviser, and the replies are posted to readers, the only condition being a stamped addressed envelope. Only a few of those of general interest are published

M.C.C. London-Edinburgh Run.

Several entries have already been received for the London-Edinburgh run, one from so far north as Newcastle-on-Tyne and another from Cardiff; both are from members who rode in last year's event. The new route has been greatly appreciated, and no stone is being left unturned to thoroughly marshal it, thanks to Mr. Bates and other members of the Newcastle and Dis. M.C.C., and Mr. Watson, of Edinburgh. The final control, corresponding to Levenhall of previous years, will probably be at the turning where the Galashiels road enters the tram route into Edinburgh, entering between the Post Office and the North British Hotel. The new route is, incidentally, free from sharp turnings and ten-mile limits, so that in this respect at any rate the new route is an improvement.



March 7th	(Greenwich)	..	6.49 p.m.
„ 9th	.. ..	..	6.52 „
„ 11th	.. ..	..	6.56 „
„ 14th	.. ..	..	7.1 „

The Inter-team Trial at Easter.

The inter-team reliability trial of the Herts County A.C. and North West London M.C.C. at Easter is already an assured success. The accommodation at one of the largest hotels in Harrogate has been taken up by members intending to take part in the tour.

A Trade Item.

Under the heading of new companies, it is announced that the Cycle and Motor Cycle Manufacturers' and Traders' Union, Ltd., has just been registered with three hundred members, each liable for £1 in the event of winding up, to take over the property and all or any of the liabilities of the Cycle and Motor Trades' Association (established in 1890), of Coventry. The subscribers are: W. G. Jenks, A. S. Hill, H. Smith, C. V. Pugh, J. Hazlewood, W. H. Fulford, and R. Burns.

Hill-climbs in N.S.W.

The Motor Cycle Club of New South Wales held a hill-climb, for motor cyclist members of the N.S.W. Cyclists' Union, at Coogee, Sydney, N.S.W., on January 22nd. Out of twenty-two entrants, ten started, racing in pairs until the final. W. W. Reynolds, on a 3½ h.p. Triumph, defeated J. Juleff (3 h.p. Lincoln Elk) in the final. S. Crouch (2 h.p. Moto-Rêve) made fastest time under 3 h.p., and W. L. Cobb (3½ h.p. Triumph) fastest for over that power.

A.C.U. Inter-club Championship.

The rules for what was first termed the "inter-club efficiency contest," but now the "inter-club championship," are now ready. We have not space to publish them in detail, but the following brief notes make clear the nature of the competition: Reliability and petrol consumption will be taken into account. Preliminary competitions will be run off in the various centres, the winning teams in each centre to meet in a final competition to be held in the Midland Counties. The contest is open to any club affiliated to the Auto Cycle Union, or officially recognised by the Motor Cycle Union of Ireland and the Scottish Cyclists' Union. Each club team will comprise six riders and machines, and each club must nominate three riders and machines as reserves. The actual competing team must consist of four single-cylinder motor cycles, and two multi-cylinder motor cycles. Passenger machines are eligible. The entry fee per team is 21s., which will be equally divided between headquarters and the centre. The distance of the final contest will be about 160 miles. For the preliminary contest, each centre will select its own course, which must not be less than 140, or more than 160 miles. Pedalling is prohibited.

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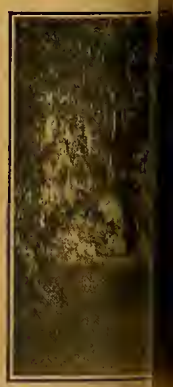

The only motor

Chat

Special Features

AUXILIARY EXHAUST RELEASE.
Brooklands Regulation Withdrawn.
ACROSS THE AMERICAN CONTINENT ON A MOTOR CYCLE.
ROTARY ENGINES FOR MOTOR CYCLES.

Annual General Meeting of A.C.U. Private Members.

The annual general meeting of private members of the A.C.U. was held on Wednesday. The business of the meeting was to receive nominations of councillors who should be supported at the election of the committee. The following members were recommended for election on the General Committee at the council meeting: Messrs. Brooker, Cove, Pratt, Sharp, Bischoff, Reynolds, Hart, Harding, Hall, Wells, Cooper, and Nelson.

A.C.U. Quarterly Reliability Trials.

The A.C.U. secretary, Mr. F. Straight, writes: "The letters of complaint with reference to the marks awarded in the last Quarterly Trial, which have appeared in your columns, can be divided into two classes. One series refers to Dashwood Hill, and the other to various traffic stops during the course of the trial.

"In the published report of the judges it has already been explained that, owing to the icy surface of the road at the foot of Dashwood Hill, the competitors who, according to the regulations, were stopped and instructed to restart from rest, found it practically impossible to get a foothold. The judges, exercising their discretion, thereupon instructed the remainder of the competitors to proceed up the hill without stopping. A difficulty naturally arose as to awarding marks for Dashwood. Bearing this in mind, and after careful consideration, the judges came to the conclusion that the fairest procedure to all was to allow those competitors who had made a good ascent to score marks according to the performance, whilst those who had stopped or fallen should be judged by their performance on Rectory Hill. Therefore the marks those competitors gained on Rectory were also allotted to them in respect of Dashwood. It will be seen, upon referring to the published awards, that no competitor has been given fewer marks for Dashwood than for Rectory. The other series of complaints refers to one or two riders credited with non-stops having been seen running alongside their machines. One of the regulations refers to traffic stops, which are, of course, sometimes absolutely unavoidable, in the interests of the public safety, and are therefore not counted against a non-stop performance. The Committee of the A.C.U. requested the riders in question to attend a meeting to explain the circumstances. The judges heard their statements, which were quite frank and satisfactory. They saw no good reason for cancelling the non-stop awards.

"The judges, in view of all the evidence before them, do not see any cause for further consideration of the awards as now published."

Hill-climb in Manxland.

It has been definitely decided to hold an open hill-climb in the Isle of Man on the afternoon of the day following the Tourist Trophy, namely, Friday, May 27th.

Amulree.

Latest accounts from Kenmore—the venue of the hill-climbing test in the End-to-end Trials next July—show that the district is still covered with snow, and the surface of the hills is in a very bad condition.

Upkeep of the Roads.

According to an authority, there are at the present time 2,014 different bodies in England and Wales having charge of the upkeep and maintenance of the roads. This is the cause of much overlapping, whereas if one central body had charge much unnecessary expense would be avoided.

A.C.U. Notes.

At a recent meeting of the A.C.U. committee, a number of new members were elected.

Handicappers.—Messrs. Ebblewhite and Dutton have been appointed official handicappers to the A.C.U.

Affiliation.—The Westmoreland M.C.C. has recently affiliated to the A.C.U.

Auto Cycle Legion.

Membership of the Auto Cycle Legion has now been thrown open to all motor cyclists interested and who are anxious to serve their country in time of peace or war. The subscription will be 5s., which will include affiliation to the A.C.U. The Auto Cycle Legion will be managed by an Executive Committee, one of the members of which will be an expert military authority.

A Proposal to the War Office.

A proposal is about to be laid before the Director of Military Training, providing for detachments of motor cyclists for dispatch riding, etc., in different parts of the kingdom where required by the Army Council. Each detachment will be commanded by a captain responsible to the colonel of the Motor Cycle Corps. It is suggested that the corps be administered from the War Office in the same way as the Officers Training Corps, and that funds be provided for uniforms and preliminary training by means of a capitation grant payable to the corps on account of every efficient man. It is proposed that the men be only sworn in for one year at a time, owing to the fact that the machines wear out and may not be replaced. Pay and allowance on mobilisation or manœuvres, staff rides, etc., are asked for as follows: Petrol and cycle allowance, 6s. 6d. per diem; special allowance, 4s. per diem (for board and lodging when not provided). The above are in addition to the ordinary Territorial rates of pay. The suggested uniform will be on Territorial lines, but provides for a field service cap which, when unfolded, will give some protection, and also for oilskin overalls of strong material. A few preliminary drills will be necessary for the recruit to give him confidence and a military bearing, but the preliminary training to be performed each year by a trained man in order to earn the capitation grant will probably consist partly of lectures and partly of instructional runs. Needless to say, the man who does not earn his capitation grant cannot expect to be detailed for manœuvres or staff rides. The intending recruit has therefore little of an arduous nature to go through in the matter of training, and certainly not a tithe of what the Territorial has to perform; he makes up the balance by his technical skill acquired by several years of road experience.

(SEE ALSO PAGE 187.)

CLUB NEWS.

(SEE ALSO PAGE 187.)

East Sussex M.C.C.

The above club is of recent formation, and local readers desiring information should write the hon. sec., Mr. R. G. Hudson, Clifton Hotel, Eastbourne. The subscription is 5s., with an entrance fee of 1s.

Nottingham and District M.C.C.

The Alfreton and District M.C.C. has extended an invitation to members of the Nottingham club for their smoking concert at the Assembly Rooms, Alfreton, to-morrow (Tuesday), at 8 p.m. Mr. J. Elliott Littlewood presided over a committee meeting on Wednesday last, when the hon. secretary reported that Lord Henry Bentinck, M.P., and Captain J. Archibald Morrison, M.P., had accepted respectively the presidency and vice-presidency for 1910. Mr. F. W. Johnson had also consented to be a vice-president. Messrs. Littlewood, Dance, Cuthbert, and Spring were appointed to attend the inaugural meeting of the Notts Centre of the A.C.U.

British Motor Cycle Racing Club.

The events down for decision at the meeting at Brooklands on Wednesday week, the 16th inst., are: All-comers' Handicap, distance 5½ miles, start 2.30 p.m.; and One Hour T.T. Race.

Scarborough and District M.C.

The annual meeting was held at the Pavilion Hotel on the 28th ult., Mr. Ringrose being in the chair. The meeting was very well attended. The secretary (Mr. Tranmer) read the report. The club commenced the year with twenty-one members, and there were thirty-seven at the end. There is a balance in hand of £8 4s. 6d. It is proposed to hold more competitions this year.

Bath C.C. Proposed Motor Cycle Section.

This well-known and old-established club is calling a meeting of all motor cyclists residing in the district at the Castle Hotel, Bath, for Monday, March 14th, with the object of forming a motor cyclist section and enrolling new members.

The University of Birmingham M.C.

The above club has already held its opening run. Meeting at 11 a.m., the members proceeded to Stratford-on-Avon, lunch being partaken of at the Swan's Nest Hotel. After lunch the run was continued to Sunrising Hill, several members making clean ascents, notwithstanding the heavy roads. Thence to Warwick, where a halt was made, and home.

Redditch & District M.C.C.

At a well-attended meeting, held at the Unicorn Hotel last Thursday, it was decided to form a club, to be known as above. Mr. W. F. Skinner, 4, Prospect Hill, Redditch, is the hon. secretary.

FUTURE EVENTS.

Mar. 16—(Wed.) British Motor Cycle Racing Club Meeting at Brooklands.
" 25—General Meeting of Northern Motor Cycle Clubs at Richmond, Yorks
" 25-28—M.C.C. Opening Run. Easter Tour to Salisbury. Jarrott Cup Competition.
" 25-28—N.W. London M.C.C. and Herts. County A.C. Inter-club Trial to Harrogate and back.
28—Brooklands A.R.C. Easter Meeting (two events for motor cycles.)
30 to April 2—Exhibition of Motor Cycles. at Leicester Association Hall
April 13—(Wed.) B.M.C.R.C. Meeting.
" 20—A.C.U. Second Quarterly Trial
" 27-28—Brooklands A.R.C. Meeting
" 30—M.C.C. Members' Hill-climb.
May 4—B.M.C.R.C. Meeting at Brooklands.
" 4—Herts. County A.C. (motor cycle section) Open Hill-climb.
13, 14, and 16 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.
25 (Thursday)—International Motor Cycle T.T. Race in the Isle of Man.
" 27—Open Hill-climb in the Isle of Man.

Streatham and District M.C.C.

There will be a "breakdown" competition at the Crown and Sceptre Hotel, Streatham Hill, on Wednesday, March 9th, at 8 p.m. Small entrance fee. Local motor cyclists are invited to attend.

Newcastle and District M.C.

The annual meeting was held on February 26th, when Mr. Robson Crosier presided, and there was an excellent attendance. The first annual report showed a balance of £18. The report was adopted unanimously, and the following officers were elected: R. Crosier (chairman), E. Hawkins (secretary), W. H. Outwin, L. Austin, S. W. Carty, L. Rosevinge, H. Bradford, H. M. C. Bell, E. L. Bates, R. Ellis, J. F. Mallett, W. B. Kirsopp, R. Wilson, R. B. Smith, and A. D. Nicholson.

The Secretary announced that the club had become affiliated with the North-eastern Automobile Association. Prizes were then presented to the successful members in last year's competitions.

It was intimated that Col. Yorke (chief of the N.E. District Cycling Battalion) had promised to present a trophy to the club for competition.

Glasgow University M.C.

Next Saturday, at 2 p.m., a hill-climbing contest is to be held on the Peesweep Hill, Gleniffer Braes, Paisley. There will be six classes, viz.: Class I., single-cylinders (unlimited); Class II., multi-cylinders (unlimited); Class III., scratch class (singles up to 500 c.c., twins up to 750 c.c.); Class IV., sidecars and tricars; Classes V. and VI., for cars.

Edinburgh M.C.C.

The annual meeting was held in the Carlton Hotel on the 28th ult. The president, Mr. Norman Macmillan, occupied the chair, and a satisfactory report and balance-sheet were submitted by the hon. secretary and adopted.

Birmingham M.C.C.

The seventh annual general meeting will be held at the Imperial Hotel on the 12th inst., to be followed by a smoking concert, to which all motor cyclists in the district are cordially invited. The meeting will begin at 6.30 p.m. The programme for 1910 will be discussed, and a very active year is projected.

Herts County A.C. (Motor Cycle Section)

Next Saturday, at 3 p.m., the opening run takes place from St. Albans to Baldock and return. Tea at headquarters, the Red Lion Hotel, St. Albans, at 6.30 p.m.; tickets 2s. each. At 8 p.m. there will be the opening of the new clubroom, a Bohemian concert, and presentation of prizes. Ladies are invited.

Members of the University of Birmingham M.C.C. at the foot of Sunrising Hill on the occasion of the opening run.

THE MOTOR CYCLE

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FOUR PAGE ILLUSTRATED SUPPLEMENT.

Club News. Entries for the B.M.C.R.C. Meeting at Brooklands. Current Chat.

Subscription Rates: Home, 6s. 6d.; Canada, 8s. 8d. Foreign, 10s. 10d. per annum.

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Simplicity.

NO one will gainsay the fact that simplicity is the keynote of reliability. When applied to motor cycles it is particularly true; therefore a motor cycle should be as far removed from complication as it is possible for it to be without sacrificing the essential details which go towards making a perfect machine. The moment multiplicity of parts is introduced, reliability and accessibility must suffer. In trials and other forms of competition where reliability counts, other things being equal, it is usually the simplest machine that scores the greatest number of marks. The average motor cycle is certainly the simplest form of mechanically-propelled vehicle on the road, and it will become simpler as time goes on. Whatever direction improvement takes in connection with our mounts, let us always impress on those responsible for their design and manufacture, simplicity and again simplicity.

Speed and Multiplicity of Explosions.

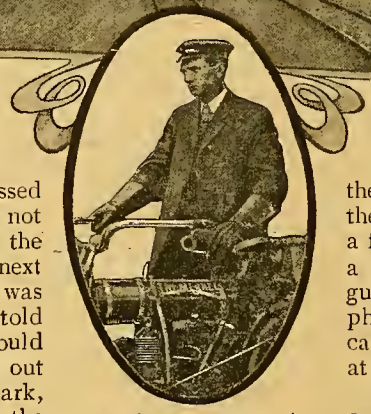
WITHIN a few weeks the riding season will again be in full swing, and this year more than ever motor cyclists will be seen in greater numbers on all the roads in the country. The increasing number of multi-cylinder machines in use and the introduction of two-stroke engines, either in twin or single-cylinder form, have made it necessary to point out that motor cyclists should endeavour to acquaint the police and others in authority that the sound caused by the exhaust of a high speed multi-cylinder motor cycle engine, possibly running on the low gear, does not mean that it is travelling at a speed in excess of the legal limit.

The foregoing has been inspired by an incident which recently came under our notice. A rider on a four-cylinder motor cycle, minus a silencer, passed the end of a street, close to where a policeman was standing, at quite a moderate speed. The officer, evidently judging the multiplicity of explosions as those emanating from a single-cylindered machine being ridden at an excessive speed, ran to the corner of the road and watched the motor cyclist gradually disappearing, and if we are not mistaken was just in time to secure his number. We then explained to him that the rider was not travelling at more than twelve or fifteen miles an hour, but, owing to the number of cylinders and the rapidity of the explosions, by which the officer told us he estimated the speed, he probably appeared to be travelling at about forty miles an hour.

Single-cylindered machines being in the majority, the public ear becomes more or less accustomed to the beat of single-cylinder engines, and both it and the police are likely to attribute reckless driving to the innocent owner of a multi-cylindered machine, which may appear to them to be greatly exceeding the legal limit of speed, when the rider is perhaps not travelling so fast in reality as others mounted on single-cylindered machines of whom no notice is taken. All motor cyclists will be doing each other considerable service if they will inform the police on all occasions that it is quite possible for the speed to be seriously overestimated solely by the fact that the number of explosions is four times greater at a given speed on one type of machine than it is on another. In the instance cited above the rider of course had no right to use his machine minus a silencer, and would have richly deserved a fine if he had been summoned, merely because he was making more noise than necessary.

ACROSS THE AMERICAN CONTINENT ON A MOTOR CYCLE

By Stanley Bowmar.



The first instalment appeared in our last issue.

Across the deserts and prairies, one's only guide for any sort of accommodation, water and supplies, is the railway line. Experience had not yet impressed this fact upon me, otherwise I would not have listened to the short-cut stories of the Laramie hotel folk. Fort Steele, the next town where petrol could be procured, was ninety-three miles away, and I was told that an excellent trail across country would lead me "right straight there." I set out gaily, confident of reaching, before dark, Elk Mountain Hotel, at the foot of the solitary mountain that gives the halfway house its name. A night in the sage brush was not the pleasantest of prospects. Luckily it was moonlight, and I plodded on, trundling over sandy hillocks and keeping my direction with a pocket compass. Between ten and eleven o'clock I came across a dilapidated ranch house. I was soon rummaging round, prospecting in the cupboard for something edible. Pots and pans and empty Milwaukee whiskey bottles were scattered round on the floor of what had evidently been the kitchen, but, other than an unopened packet of Quaker oats, the cupboard was innocent of even the proverbial bone. The hay loft over the barn was more tempting than the bedroom. Covering myself with hay, I made an effort to sleep. Inside, the rats, in battalions numerous enough to cheer the heart of a German Minister of War, romped and raced round about and over me; outside, the coyotes' dismal howls as they prowled around were just as insistent—and unwelcome.

The Cowardly Coyote.

The coyotes—the wild dogs of the American deserts—are the most despicable, miserable wretches in the whole animal tribe. They will not attack one; they are too big and cowardly for that. They delight to slink round, in a sneaking, cunning way, preying on weak sheep and lambs, sickly jack rabbits—on anything that cannot put up a fight, or even a decent struggle. At nights on the deserts their howls can always be heard, dismal in the extreme, like the wails of lost souls in the wilderness. Many a night when I have been trundling along, dead tired, wondering how far it was to the next section house or camp, their shrill howls have made the dead silence of the vast open spaces more intense and depressing.

I raided the packet of Quaker oats in the morning, then returned to the cheerless task of finding the trail. The summit of the only hill in the vicinity showed a dismal outlook. Undulating prairieland, broken here and there by clumps of stunted trees, as far as the eye could reach; the only sign of life a few scared cattle. Beyond these I noticed a smudge on the horizon—Elk Mountain, I guessed! So far away! In the clear atmosphere of the deserts of high altitude the eye carries far. I knew that the mountain was at least thirty miles distant.

It would be wearisome to detail the difficulties encountered during the day—at times trundling across country without the shadow of a track, riding where a heavy dray would scarcely have ventured; and in the evening, after I had intersected the trail, a river had to be forded.

Troubles and difficulties were never absent after I crossed the Rockies, but my experiences between Laramie and Fort Steele were probably the most disheartening. I reached the Elk Mountain Hotel an hour after dark, worn out. The landlady, a kind motherly person, brought me warm water to bathe my feet, and took charge of boots, stockings, and knickers, which had been soaked in the ford, and soon had ready a steaming hot supper.

Wretched Weather Delays Progress.

Lack of a decent trail had been my trouble the last two days; on the morrow it was wretched weather. The hotel folk predicted snow, and strongly advised a halt until the weather improved. The biting wind from the mountain was cold enough for anything; so cold, in fact, that the motor would not start on account of the piston sticking. So late in the season, however (it was then past the middle of October), every day lost lessened my chances of getting across Wyoming and Nevada before the winter snows and blizzards made the deserts uninhabitable.

Down a gorge with the rather suggestive name of Rattlesnake Canyon, I followed the trail, against a cutting gale. In spite of the down grade, the motor was twice blown to a standstill, and to walk against the wind was practically impossible. At the western foot of the mountain the track led into a vast plain of prairie; led, one could well imagine from the outlook, to some far away Nowhere, a Never Never Country, a billowy waste of stunted sage brush and sand. Heavy clouds in the south-west formed an inky background for the drifting sand in the valley.

An hour's riding, given a fair track, would have

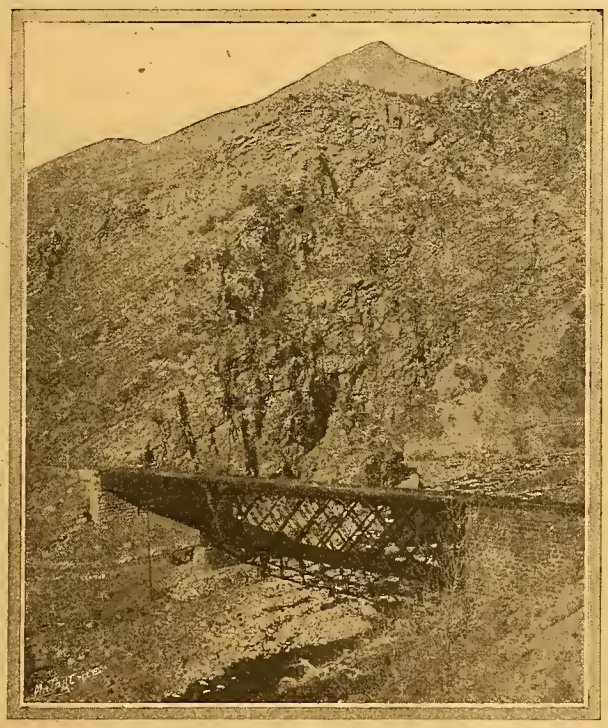
Across the American Continent on a Motor Cycle.—

seen me safely at Fort Steele. An hour's ride! Not one but five hours later I was still in the prairie, in a blinding snowstorm, soaked to the skin, half frozen, and no nearer to Fort Steele. It was impossible to follow the trail after the first snow had fallen.

Night found me, not at the town, but in a shepherds' camp, which I espied when the storm cleared away. Had it snowed until after darkness set in, I fear that it would have been necessary for those interested to advertise in some lost, stolen, or strayed column for one trans-Continental motor cyclist. Rigged out in dry clothes I thawed gradually by the shepherds' stove in their little house on wheels.

A Solitary Life.

In Nevada and Wyoming hundreds of shepherds spend all the year in their camp vans, always on the move, changing their districts according to the season. In summer they are to be found on the high grounds; in winter they shelter in the plains. There are vast areas in these states that have no marketable value; but where there is a little water, sheep and cattle will, if kept on the move, at least find sufficient "picking" to live. Many of the sheep and cattle men send out a man and a youth with a two-horse van, provisioned for three months, in charge of a flock of sheep or a herd of cattle to wander over these areas. At shearing time, or when prices rise in the Eastern markets, the sheep or cattle are driven back again to civilisation.



Over bridges like the one shown above, but on an infinitely larger scale, the trans-continental motor cyclist has to cross a number of rivers in the States of Wyoming and Nevada.

Not infrequently a state of war exists between the cattle and sheepmen. Sheep eat closer than cattle. If the sheepman encroaches on the cattleman's preserves, the cattle starve. These quarrels are sometimes serious. The roughest characters obtainable are engaged on both sides, and fatal combats are by no means uncommon.

The idea of motor cycling across the Continent paralysed my friends in the house-van. They could not have been more surprised had an aeroplane alighted in the neighbourhood, and I had to explain (as I had on many previous occasions) the mysteries of a motor.

"Well, I'll be durned," said one of the quaint old waybacks. "I guess it's as trickey as my old woman used to be."

So welcome did the shepherds make me that I was loth to leave. With not more than half a dozen favourite volumes, no worrying weeklies or newspapers, I can well imagine that a year of such aloofness and solitude as their life afforded would be a time of rich experience and splendid development, to a student.

The tanks recharged with petrol and oil at Fort Steele, I headed west, being careful to keep close to the railway lines. For the future short-cut suggestions simply did not interest me.

Miles and miles of the prairie land traversed has been arid enough. But my first real desert was ahead —the Red Desert, immediately west of Fort Steele. Instead of the sandy plain I expected, it was undulating—billowy, like the ocean when a big sea is running. The most impressive feature of the great deserts is the mighty silence and solitude that is so overwhelming. The wind, which in the daytime blows continually from the west, sings a mournful lonesome song in the telegraph wires, always sad and cheerless. There is no song bird—no living thing of any description, save a stray, sick-and-sorry looking coyote, which, with a furtive and evil glance at one, starts from his hiding place and quietly slinks away.

Often there was a thick coat of alkali over the sand, white as snow. The deep burning sand of the ordinary desert is bad enough, but the alkali flats are wholly accursed. The fine white dust penetrates one's clothes and plays havoc with the skin. My hands, hard as they were, soon cracked, and lips and ears and nostrils. The alkali flats, however, were firmer than the sand; it was possible to ride on them. Where the sand was soft, there was no alternative but to bump the ties between the rails—a proceeding calculated to wake up even the Solar Plexus.

The Great Divide.

A peculiar interest attaches to the Continental Divide, which I passed at noon next day, because if a spring should rise at this spot (which is not the least likely), it is said that its waters would divide, one half flowing to the Atlantic, the other to the Pacific Ocean. There is no Sweet Vale of Avoca, let me remind the reader, at the "Dividing of the Waters"—nothing but desolation and utter dreariness. A railway telegraph office and a section house have been erected there.

Every twenty miles or so along the Union Pacific Railway there is what is called in America a section house, where the repairmen camp—little outcast colonies of workmen, mostly Greeks, Italians, and Germans, with usually an Irish foreman, cut off from the world. The fast trains fly past, accentuating the sense of loneliness and isolation. In fact, the only tie with civilisation is the occasional call of a water train to fill the tanks and leave provisions. Their only visitors are tramps.

Motor troubles had caused a minimum amount of trouble west of Denver, but my good fortune in this respect forsook me farther west. A header on the

line broke a petrol pipe, and all the precious fluid wasted on the thirsty sand forty miles from Rock Springs, the nearest town. A forty mile walk! There was no alternative. An all-consuming thirst (I mean no irreverence) drove me almost mad as I trudged through the blistering sand. The sky was white with heat, and the sun's rays bounced back from the baked earth, and literally burned. Every gust of wind was like the breath from a liner's stoke-hole.

My petrol pipe soldered, another difficulty presented itself west of Rock Springs—the Green River was not bridged. They told me of this in the town, but said that the ford could be negotiated on foot, the river being unusually low. Why some people delight to give unreliable information in a positive, oracular manner that brooks no question, is a question that

A Californian orange ranch on the trans-Continental route.

comes up for solution with every stranger in a strange land, even in the Country of the Free. It troubled me in every State; the average American has a tendency to be so pugnaciously positive about everything.

The alternative of the ford was the railway bridge. Two fences had to be "got through" (I always carried a file), and the stars were out before I reached the bridge. Anyone who has seen an American railway bridge will know that invariably it has no side rails and that the planks do not protrude far at either side of the rails. I have seen it stated that if a train caught one on a bridge there was nothing for it but to do some practical trapeze work and hang from the ends of the planks. That possibly would be the safer way—for a man from a circus.

An Alarming Experience.

The Green River bridge is a long one. Before I started what was necessarily a slow, precarious walk, stepping from sleeper to sleeper and trundling the machine, I listened carefully. There was not a sound but the gurgle of the water against the piers; the night was as quiet as only a desert night can be. I would risk it. When a little more than half over, I noticed a tiny light in the distance, which quickly developed into the glare of an electric headlight of a fast train. Lifting the machine on to the outside of the rails, I laid it flat on the protruding end of the sleeper, the handle-bars and petrol tank well over the edge but balanced by the weight of the motor. Sitting on the edge of the sleeper, I shut my eyes and leaned over the water and hung on for grim death. With a rush, an alarming suction, and a shrill whistle, the train flew by. I have no doubt that for many a day the engine-driver will relate with gusto how he nearly scared the life out of a tramp one night on the Green River bridge. Subconsciously as I walked along gingerly, before I had an idea of the coming of the train, I had thought out what should be done in case I were caught. That possibly was my salvation.

More trouble was in store that night. Granger, the next town, was fifteen miles west, and the line was too badly ballasted for riding or for fast walking. In the small hours of the morning, after being turned away from one place as an undesirable tramp, I found a saloon keeper, who for payment in advance produced some bread and cold meat. He allotted me a bunk in a room with five others, one of whom expressed, in language more forcible than choice, his objection to my late intrusion on his drunken dreams.

The Fertile Utah Valley.

Utah. Would that I could adequately sing the praises of this State. What a relief to be where there were springs of cool, pure water; to see the autumn colours of the cotton woods, willows, and the evergreen pines, and the green hills and flower-strewn valleys! There was a welcome down grade from Evanston to Ogden, good roads, superb scenery down Echo Canyon. Instead of a monotonous waste, every nook and corner some industrous Mormon has converted into a prosperous farm. One hundred acres of Utah would be infinitely preferable to the whole state of Wyoming, all the towns thrown in as an extra Christmas inducement.

The Utah Valley is truly an oasis in a wilderness of desert. It is roughly situated right in the centre of the waste between the Rocky and the Sierra Nevada Mountains. Surrounded by the protecting Wasatch range, there are millions of acres of rich pasture, thousands of orchards, and areas, measured by the square mile, of towering corn. So far as my experience went, the hospitality of the people of Utah far exceeds that of any other State in the Union.

(To be concluded next week.)

In East Grinstead there is a baker who employs a boy to drive an old motor bicycle, apparently 5 or 6 years old, to which a carrier is attached, which serves to carry loads of bread he distributes during his daily rounds.

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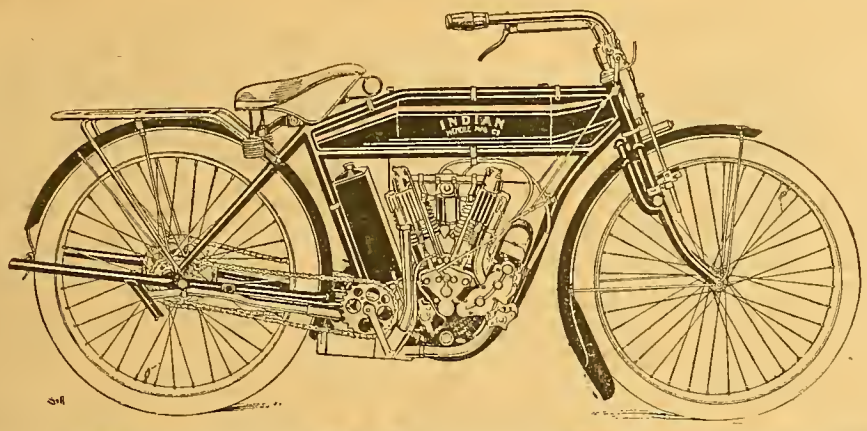

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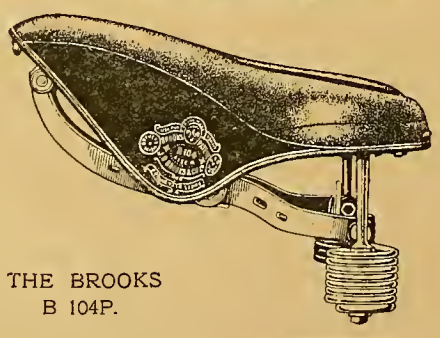

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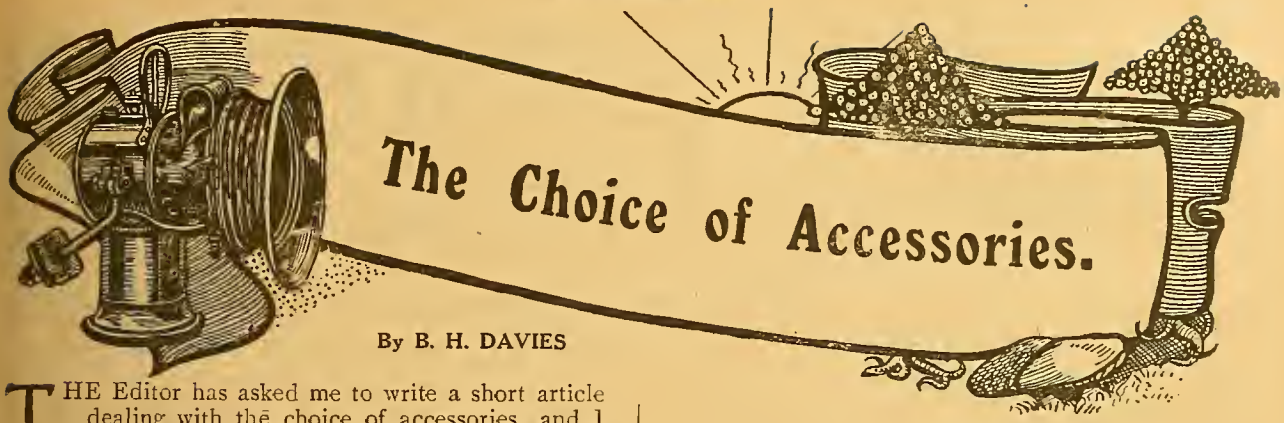


The Choice of Accessories.

By B. H. DAVIES

THE Editor has asked me to write a short article dealing with the choice of accessories, and I can only emphasise facts which ought to be obvious, viz., that the accessories bought for use with any machine should be good in quality, and suited to the machine.

A machine is well equipped when it has a suitable selection of extra tools, lamp, and generator, hooter, spare tube in case, spare belt in case, luggage bag, and a speedometer. The tools in which most makers' kits are deficient are a good big spanner, a first grade screwdriver, and a valve spring remover.

Good.

It is a great mistake to save a few shillings by buying cheap accessories. There are lamps which fall to bits, generators which only burn an hour, hooters which bend or shiver their clips and cannot make a decent noise, leather bags and cases which melt when it rains, or have flimsy straps and rivets. Those riders who can make personal visits and select their accessories from the store of a large dealer should pay special attention to the nature of the fastenings, which can seldom be too strong and substantial. Country riders should get a selection sent down on approval. I always have quite a crateful of fittings and clothes down from town when I order a new mount. More than once I have returned its entire contents, and demanded goods of better quality. In time one comes to know whose waterproofs, whose lamps, whose horns, whose tools, etc., can be relied on.

Suitable to the Machine.

I shed the silent unostentatious tear when I see a Motosacoche carrying a 5in. Mangin mirror head lamp, or a £55 twin equipped with a cheap lamp that would hardly be fit for a £5 pedal bicycle, or a machine finished in nickel adorned with a brass hooter and head lamp, or a carrier full of paper parcels and small Gladstone bags, or a leather belt strapped on naked, smeared with mud, or a spare tube looped round the handle-bar. Such sights are not uncommon, and offend the eye.

Tyres.

The average rider will find that a rubber-treaded cover with pronounced studs or bars, or other anti-skid, is the most satisfactory for regular use all the year round; that jointed and butt-ended tubes are now perfectly reliable, and a great convenience in bad weather or when time is short; that such tubes ought to be stored in a specially designed case; and that the case needs broad and well riveted straps.

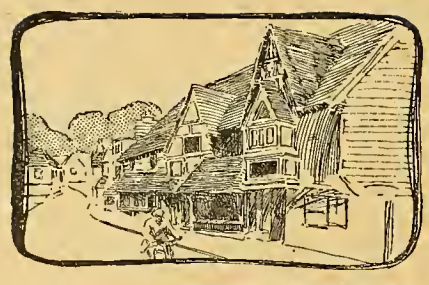
Clothing.

No colour is so well suited to all weathers as fawn. Many single texture garments are not drencher proof. A good price should be paid for a good article. The coat must be capable of being put on without contortions My last is an excellent protection, but it gives me cramp to put it on, and when it is on, my watch, pipe, and matches are inaccessible till it is removed again, and its removal affords a most laughable and undignified spectacle. The coat should be covert length at least, and the neck proportion is seldom adequate. Leggings are a large item in the balance-sheet of most all-weather riders. The fit-tight types look very neat, but few of them are designed with an eye to any but ideal feet. They are too narrow in the bore, and when a nailed boot is thrust down them; it either rips them to ribbons or seizes half-way. I have descended to a **large** pair of macintosh trousers. They look unsightly, even with cycle clips round the ankles, but I have grown aweary of stumping up 15s. once a month to replace torn breeks, and my stove pipe pair have lasted three seasons, just because the bore is wide enough to accommodate a No. 10 boot during the process of insertion. Overalls should be provided with a waterproof case for storage, otherwise the first downpour often wets them inside.

Toolbags.

Eschew the Saratoga trunk variety. There is one in my attic now. Its floor is covered with a kind of cement composed of carbide and lubricating oil. Embedded in the cement are some spare plugs, a valve, cotters, terminals, springs, studs, a toothbrush, a collar, etc. Now my oilcans spring into their own private clips. The tools have a bag to themselves; ditto the spare parts; ditto the personal luggage. When a late return is possible, the carbide tin goes in a side pocket, a small wallet of light tools goes in the other side pocket, and so forth. The family Noah's ark type of bag is dead out of date, and its place has been taken by several small bags disposed about the handle-bar, the tank sides, and the side stays of the carrier, leaving the carrier top and saddle back clear for a special suitcase of suitable dimensions when the machine is out on tour.

The meeting of the B.M.C.R.C. at Brooklands on Wednesday promises to be a great success, and it is to be hoped that a large number of motor cyclists will visit the track. The admission fee is one shilling.



CLUB NEWS

The Hull (Kingston) M.C.

The opening run is to Richmond, North Yorkshire, on Good Friday, leaving the Hayworth Arms, Newland, at 7.30 a.m. prompt.

North West London M.C.C.

The opening run is on the 20th inst., from Dollis Hill Lane, at ten o'clock, to the Rose and Crown Hotel, Tring.

Members who are unable to start for Harrogate in the inter-club competition should communicate with the hon. secretary, Mr. C. A. Stern, 14, Grove Road, Cricklewood, who will make arrangements for a party to start later—probably on Saturday afternoon.

WESTERN DISTRICT M.C. PAPERCHASE.

The "hounds" waiting for the eight minutes to elapse to take up the hunt.

The "hares" rode a Red Indian and a Triumph.

Newport (Mon.) and District M.C.C.

A general meeting was held at the Central Chambers, when there was a good attendance, and new members enrolled. The officers are: Captain, G. Scott; vice-captain, J. H. Foreman; treasurer, F. Purnell; hon. secretary, J. Pritchard.

The first run will be on Good Friday, to Hereford, leaving headquarters, Queen's Hotel, at 10 a.m.

The Newcastle and District M.C.C.

The club suggests holding team trials in conjunction with the opening run to Richmond on Good Friday. It is expected that this will bring out a few more riders than usual, and other clubs attending this and other meets might well follow this example. The Newcastle and District M.C.C. has found in the past that team trials are interesting, and very beneficial to the novice, as it very often happens that an expert and a novice are drawn together in a team, and the expert must get his novice home; consequently such trials can be looked to as a form of motoring education.

Manchester M.C.

Next Saturday the opening run takes place to Sandbach. The Easter tour commences on the 25th inst., to Beddgelert and Snowdonia. On Thursday next the return billiard match with the Liverpool M.C. will take place at Liverpool.

Cambridgeshire M.C.C.

The social evening arranged for to-morrow (Tuesday) will take the form of a whist drive. It is hoped that all members who possibly can will attend and take friends.

Shropshire M.C.C.

The second annual general meeting will be held on Thursday next, at the Unicorn Hotel, Shrewsbury. Any motor cyclist in the district desirous of becoming a member should send his name and address to the hon. secretary, Cecil Rice Oxley, Wheatlea House, Meole Brace, Shrewsbury.

Leicester and District M.C.C.

There was a splendid turn-out for the opening run of this newly formed club, and the run itself was a huge success. Thirty-six motor bicyclists, two sidecarists, and one tricarist started for Market Harborough, where tea was partaken of. (See photograph, page 231.)

On Sunday, the 20th inst., it is proposed that the members meet the Nottingham M.C.C. at Belvoir Castle. A hill-climb will probably take place in May, and there will also be runs to London and back and Skegness.

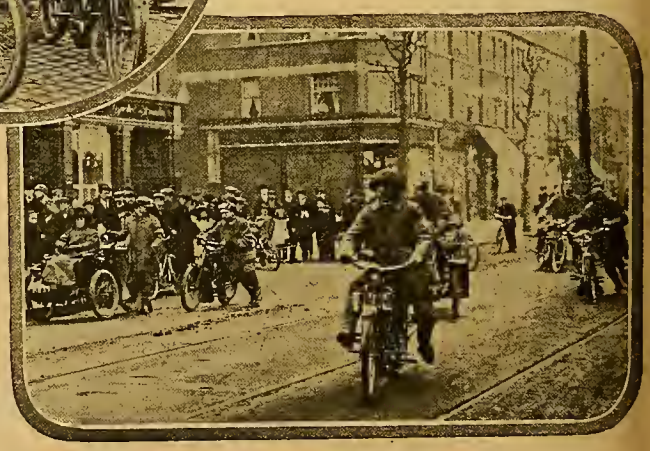
Middlesbrough and District M.C.C.

"Humorous Experiences with a Tricar" was the title of a paper read by Mr. J. R. Sorrell, jun., to nearly thirty members of the above club, at the headquarters, Corporation Hotel, Middlesbrough. The paper was written after a journey on the railroad to London and on the highway from London to Middlesbrough, and was a great success, the lecturer provoking much mirth by his witticisms.

Bishop Auckland, Darlington, and District M.C.

There was a good attendance of members at the club's headquarters, Wear Valley Hotel, Bishop Auckland, to hear Mr. N. Dewhurst's paper on "The Law and its Relation to Motorists." Mr. Dewhurst very clearly explained the numerous sections of the Motor Car Act, and drew attention to several very important points.

A hot-pot supper and smoking concert was held on Friday last.



The "hounds" starting off hot on the scent.

If you want the handiest, strongest, lightest, and most efficient lightweight motor cycle there is, order a

MOTO-REVE

the lightweight with the refinements, comfort, and reliability of an expensive heavyweight.

Price **27 Guineas** (Model "B.")

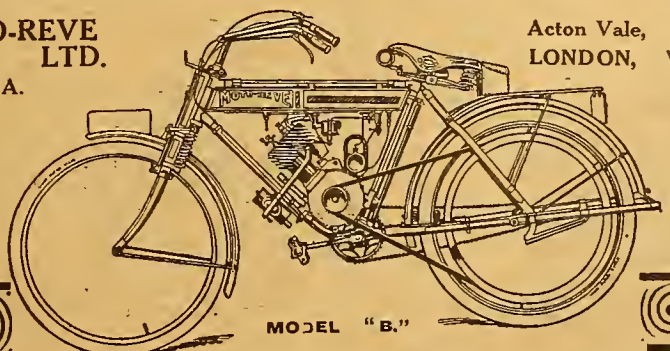
with magneto ignition, single cylinder, entire handlebar control, Druid spring forks, carrier, stand and number plates.

WEIGHT only 78 lbs.

Other models suitable for all purposes. Full details, prices, and illustrations free on request. Free trials can be arranged.

MOTO-REVE CO., LTD.
DEPT. A.

Acton Vale,
LONDON, W.



MODEL "B."

S. & H.

In answering this advertisement it is desirable to mention "The Motor Cycle."

HUNT'S

The City Motor & Cycle House,
NEWGATE ST., LONDON, E.C.

RELIABLE ACCESSORIES AT
London's Lowest Prices

THE NORTH ROAD DUST AND RAINPROOF OVERALLS.

These meet a long-felt want; they can be instantly slipped on over the ordinary trousers, they fasten round waist with a leather strap and buckle. Being made in one piece they are a great protection to the stomach, also it is impossible for the rain to drive in as with the ordinary overalls. Made in three lengths—short, medium, and long. Shaped to go over boot. Patent Side fasteners. Price, in fawn waterproof material, **16s. 6d.** Postage 6d.

Double texture waterproof coat with collar and rain and windproof sleeves to match above, **21/-.**

THE "ACME" WATCH HOLDER.

Will not rust. Made in aluminium. Will fit all handlebars. Complete with **Ingersoll** watch that is specially constructed to stand vibration. Watch can be set and wound without removing same from case. Each watch has a written guarantee given with it for 12 months. Price, complete, **8/6.** Case only, **3/6.** Post free.

THE LODGE PLUG.

Suitable for magneto or accumulator ignition. Spark brought well away from all cold metal surfaces, enabling **maximum power** to be obtained from spark and extremely weak mixtures to be fired. Three spark points and centre rod all of **absolutely pure nickel** and substantial in size. The spark will not burn them away. Porcelain sleeve round central electrode, which keeps hot enough to prevent the deposit of soot or any condensation, and this without the possibility of preignition common to plugs with projecting porcelains. Each plug guaranteed. Price **4/-.** Post free.

THE HUNT HELLESEN DRY CELL.

No corroding terminals. No acid. No charging. Always ready, clean, and dry. The **"Flash."** Height 6½ × 4 × 2½in. Approx. mileage, with siogle-cylinder engine, 1500. Price **6/6.** The **"Flight"** ditto. Height 5½ × 5½ × 2½in. Price **6/6.** The **"Midget"** emergency ditto. Height 5¾ × 4⅜ × 1⅜in. Will run approx. 300 miles. Price **4/4.** Postage 6d. extra.

BOWDEN HANDLE-BAR CONTROL LEVERS.

Single lever only, **4/6**; ditto, with 4ft. of combined cable and stop, **6/4.** Double lever, **6/-**; ditto, with two lengths each 4ft. of combined cable and two stops, **9/8.** Post free.

THE HUNT MAGNETO COVER.

Manufactured of best patent leather, far superior to rubber as it does not crack or perish. Will fit all types of magnetos.

Price **2/3.** Postage 2d. extra.

Protects the magneto from dust, dirt, rain, etc.

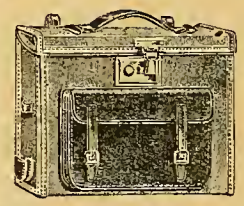
The **H.S. All-rubber Goggles,** including one set each of smoked and plain glasses. Price **1/11.** Postage 2d.

THE HUNT EXHAUST WHISTLE.

A splendid road clearer. Easily fitted. Operated by foot. Effective on one or two cylinders.

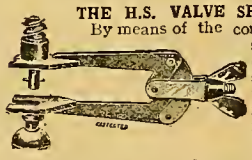
Price complete, in brass, with foot pedal, **10/6.** Post free.

THE "COMPACT" PANNIER BAG.



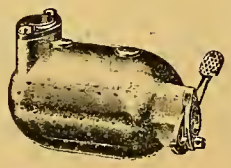
Manufactured of strong waterproof brown canvas, fitted with two small outside pockets to take oil can and petrol squirt, and large leather pocket for spares. It is adapted for strapping on the side of a Lycett tubular carrier. This bag will carry all tools, oilers, etc., also a spare tube and belt. Size 12 × 9 × 3in. Price **12s. 6d.** Carriage paid.

THE H.S. VALVE SPRING LIFTER.



By means of the compound action the stoutest spring is easily raised by a slight turn of the winged nut, leaving both hands free. Price **2/6.** Post free.

THE HUNT SILENCER.



Manufactured of aluminium. No back pressure. Very light. Guaranteed silent. Price **14/6,** with cut out **18/6.** Ditto, with whistle, **24/-.** Post free.

THE HUNT EXHAUST CUT-OUT.

Increases the power on hills. Easily fitted. Worked by the foot.

Price in brass with foot pedal, **4/6.** Post free.

HANDLE-BARS.

Best quality only. Length, 23ins. Price **6/9.** The **P.M.** pattern, as illustrated; length 18in., stem ⅞in. or 1in. Price **7/6.**

Postage on handle-bars **6d.** extra.

THE "COMPACT" TOOL ROLL.

Size 15 × 7½in.

A useful little accessory, keeps all the tools clean and separate. Can be carried in the ordinary toolbag, is fitted with pocket for spares, manufactured of soft pliable leather and has a strong leather binding strap.

Price **3/-.** Postage 2d.

THE R.O.M. PUNCTURE PROOF COMBINATION RUBBER AND STEEL NON-SKID COVER.

Give absolute immunity from skidding under any road conditions.

Are long of life, and yet resilient.

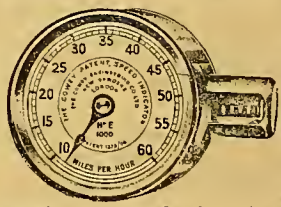
Are capable of being ridden equally well in summer or winter.

Present the greatest possible resistance to puncturing materials, and yet have no leather in its composition (leather making the tyre "dead").

Price, 26 × 2, **52/-**; 26 × 2¼, **55/-**; 26 × 2½, **57/6**; 24 × 2¼, **53/-**; 24 × 2½, **54/6-**; 28 × 2, **54/-**; 28 × 2½in., **60/.** Carriage paid.

THE COWEY SPEED INDICATOR AND MILEAGE RECORDER (Guaranteed).

Protection from Prosecution.—To the careful rider the Cowey is invaluable, for the exact rate at which the cycle is travelling can be seen at a glance, and it is impossible to unknowingly exceed the maximum legal speed. Motorists generally know the difficulty of correctly estimating the speed at which they are riding, and have been "trapped" when travelling—as they imagined—well within the limit.



Registers a speed up to 60 miles per hour. Mileage recorder registers up to 10,000 miles, then automatically starts again.

The indicator can be easily attached by any motorist, and once fitted requires no attention or adjustment whatever. It will continue to render good service as long as it is attached to the cycle, for it is constructed throughout of the best and most suitable materials by expert British mechanics at Kew Gardens.

Price, in Nickel, **84/-**, carriage paid.

THE NEW MODEL MUD PROTECTOR.

With Side Wings.

Manufactured of best patent leather, strengthened with iron supports. It is attached by means of thumb screws to front mudguard, and can be fitted to any make of machine in one minute; protects both rider and motor from all dust and mud thrown up by the front wheel.

Price **5/-.**

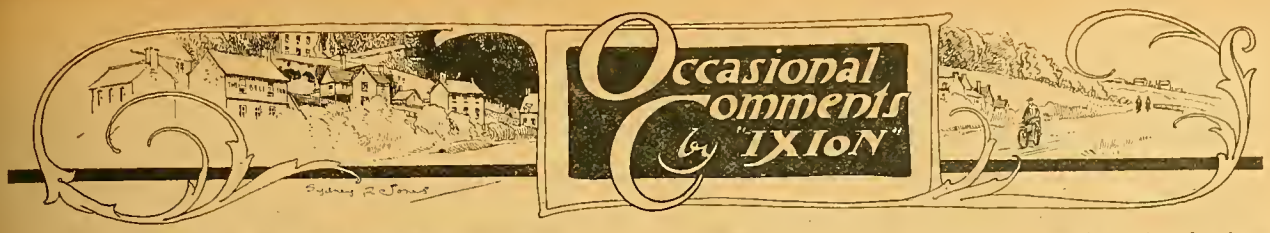
Postage 4d. extra.

THE "PATCHQUICK" REPAIR OUTFIT.

Containing "Patchquick" patches, which amalgamate with the tyre, and are not affected by heat

or friction. Used in conjunction with the "Patchquick fix," a repair can be executed that is equal to any vulcanising process. Price **3/-.** Post free.

A24 **Catalogue now in course of preparation.—Register your name and address for a copy, gratis and post free.**



Two Types of Machine in the Colonies.

The trade have yet to realise that two types of machine will sell in the colonies, and that of these one alone can expect a really large sale in the near future. Many of the machines such as we use on the old roads at home are mostly useless for business and touring purposes in the colonies. A genuine colonial roadster *must* have a variable gear, high power, great strength, large petrol capacity, and magnificent springing fore and aft. A big colonial market is impossible for any other type of machine at present. In the meantime a much more restricted market is open to machines which are practically *fac similes* of standard English types; it is this market which is being gently tapped by a few firms already, but these machines are seldom used for anything but short potterings in the neighbourhood of the more developed settlements. Their owners resemble the majority of American riders, in that regular cross-country work never figures in their experience. This market is certainly worth having, worth fighting for. But it does not compare in scope with the other market. Only a few comparatively well-to-do settlers will buy a machine for pottering within a twenty-five mile radius. Thousands of hard-working business men in the colonies will buy an efficient cross-country machine, such as will climb Amulree in any weather with certainty.

A Mission of Help.

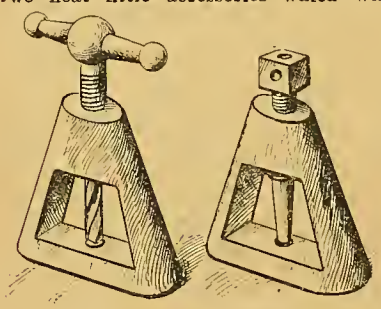
Several colonial riders have written to me during the last few months in very similar strain. They agree in asserting that very few colonial riders understand how good the modern motor bicycle is. The writers have been home quite recently, have sampled the opinion of English riders, and have tested first rate machines under home conditions, with the result that they have each taken back to the wild fastnesses of their respective homes in bush or on veldt an up-to-date machine. They assert that if colonists knew the capacity of the modern machine, the number of riders in South Africa, Australia, India, etc., would increase by thousands within a year or two. One enthusiast kindly invites me to purchase the mount I think most suited to the conditions he describes, and make a princely progress on it through the colony in which he resides—an area about double the size of Europe. He promises me a long round of lavish hospitality at the houses of keen riders, and suggests I shall lecture at various centres, and attend petrolic smokers at others. Nothing would charm me more, but neither my purse nor my engagements will allow of such a fascinating holiday. Nevertheless, I believe two or three of the big colonies are ripe for a visit from an expert rider, who, mounted on the best colonial mount that can be produced, should make a missionary progress throughout its length and breadth. I remember a Midland firm once sent out their crack rider on a mission of this sort, but the enterprise was premature. Nowadays we can make machines which could be of real use to the squatter, the Government official, the business traveller, and the colonial evangelist. I believe such an enterprise would repay a big firm already engaged in the trade. Failing such a firm, the tour would make a very pleasant outlet for the exuberance of sundry wealthy enthusiasts in our ranks who now spend their time in competitions at Brooklands and elsewhere. Will any enthusiast make up a party of keen and practised riders for a colonial tour in one of those big dependencies of the empire?

New Rules in the Six Days' Trial.

The only changes of any importance in the regulations for the Six Days' Trial are the raising of the minimum speed from 15 to 18 m.p.h., and the addition of a distinct penalty for loitering within a mile of controls. The first reform will penalise minor stops, and is therefore a sound innovation. It is a plagiarism from the Scottish Trials rules of 1909, when it worked very well; but it will press rather heavily on the riders unless the checkers get through their work more expeditiously than is their habit, and unless the petrol supplies are better engineered. Now that the riding time has been pared down a little, the men must not be delayed ten minutes at checking stations, nor must there be long delays in getting petrol; there may be considerable friction unless these points are well looked after. If the entry is large, there should be three checkers and three time sheets at every station, and the A.C.U. should invest in two or three dozen funnels, and loan them to the garages the men will resort to, each garage forwarding the funnels on to a garage along the next day's route as soon as the men have passed through. I do not say that riders are compelled to lose marks by such delays as I describe, but I do assert that the want of proper organisation in these respects compels the men to ride hard, and robs the trial of much potential pleasure. The second alteration is an advance, but scarcely goes far enough. It imposes a penalty of ten marks on any rider found within a mile of a checking station when ten minutes ahead of his schedule time. It imposes no penalty on riders loitering two miles outside a checking station. It will therefore be a dead letter unless the exact locality of the checking stations is kept a secret. If the checkers are posted at the familiar spots known to the older hands, the men will wait about three miles out of control instead of close at hand. If riders are warned that a check may be expected anywhere along a five or ten mile stretch, we shall see the machines keeping close to schedule all along the route, and we shall get a much more searching test of reliability. We do not want the ride spoilt, from a pleasure point of view, by entire secrecy as to checks, so that a rider never rounds a corner without fearing a check, at which he may lose a dozen marks or more; but we do not want continual scrapping, and we do not want men to have a loophole for unpenalised repair stops of varying duration in each day's run.

At this time of the year, when the whole of nature is about to burst into life, according to the calendar at any rate, great activity will be displayed in the ranks of motor cyclists. The machine ordered at the show has emerged from its chrysalis, and there it stands waiting for the first long ride for which dry roads will lend enjoyment. The first few preliminary spins give the rider the idea that several things are missing. His hands are cold, he needs to protect them; that old suit of overalls, torn perhaps and travel stained, does not go well with the bright plate and enamel of the new mount; a new lamp must be purchased, and a hundred and one odds and ends to add to the pleasures of motor cycling. We well know that most motor cyclists would like to visit each accessory maker in turn and select his own wares, but to very many this pleasure is denied. Consequently we need offer no apology in bringing this accessory and equipment issue before our readers. No expense or trouble has been spared to make both drawings and descriptions as clear as possible, and no stone has been left unturned to unearth novelties which are always cropping up from time to time. The study of accessories is also an interesting one, as the numerous items designed to add to the convenience of the rider display much ingenuity, cost comparatively little, and often as not their fitting on the machine gives as much pleasure as the use of them when ultimately *in situ*. To prevent confusion and enable readers more readily to find what they want we have classified the various articles under the following heads: Accessories, Equipment, Tyres, Electrical Appliances, Lamps, and Riding Apparel.

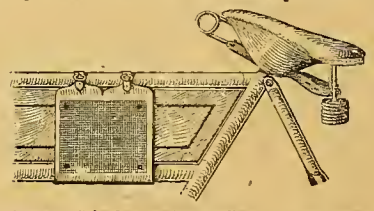
Mr. Anderson holds an advantage over many of his rivals in that he has been in the motor cycle trade for over ten years. In fact, he first showed his belts at the Crystal Palace show in 1899, so he may justly be considered a pioneer. At present he makes a speciality of the Elswick belt (a sturdy leather accessory) and the Gnaviter rubber belt (an equally serviceable contributory to the motor cyclist's welfare). A mere glance at these two belts shows their utility and strength, and Mr. Anderson's long experience in the trade is sufficient to guarantee their worth. He also specialises in two neat little accessories which will



Anderson's Belt Punches.

be useful to every motor cyclist, *e.g.*, a belt drill and belt punch. These are compact devices which take up but little room in the toolbag, and weigh practically nothing, while they may easily repay the small initial outlay in purchasing them, in one short run. Many kinds of wires, including electrical cables, control wires, etc.—in fact, there are 125 different kinds for all purposes—and cleaning materials, including Gnaviter wiper, conclude the special lines marketed by one of the first firms to cater for the motor cyclist. (F. L. Anderson, 1, Furnival Street, E.C.)

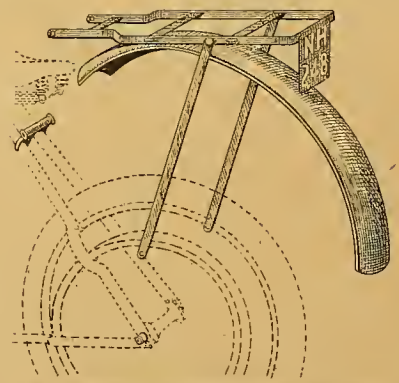
Most riders will discover, if they examine their tanks, that their knees unconsciously grip the tank sides when travelling fast, or in emergencies, and that, in course of time, a patch of the tank gets worn bare of enamel. The latest accessory is a rubber pad, strapped over the top tube, intended to protect the tank at these points. It



A Knee Grip for motor cyclists. It prevents the enamel being rubbed off the tank.

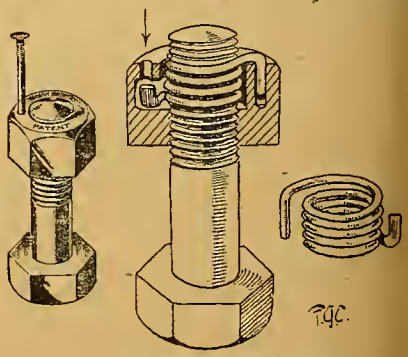
will doubtless find favour among riders who are particular about the appearance of their mounts. (A. K. Mfg. Co., 35, Swain Street, Bradford.)

In addition to the Advance adjustable pulley and belt fastener, the firm make a detachable luggage carrier and mudguard. This enables the luggage carrier and mudguard to be taken clear away from the back wheel when it becomes necessary to repair a puncture. With these obstructions out of the way it is, of course, much easier to remove the cover and patch the air tube—an operation which often necessitates taking out the back wheel in the case of machines with carriers. It is also an advantage when cleaning the machine. It can be fitted to any make of motor cycle, provided the distance between the back stays and mudguard bridge and diameter of wheel are given when ordering. The makers also supply a number plate with the carrier, on which the registered number of the machine will be painted if the necessary instructions are given. (Advance Motor Mfg. Co., Ltd., Louise Road, Northampton.)



The "Advance" Detachable Carrier and Rear Mudguard.

The Automatic lock nut is clearly illustrated by the accompanying line drawings. The nut is locked by means of the coiled spring which encircles the thread on the bolt. This spring exercises a constant grip on the thread



The "Automatic" Lock Nut.

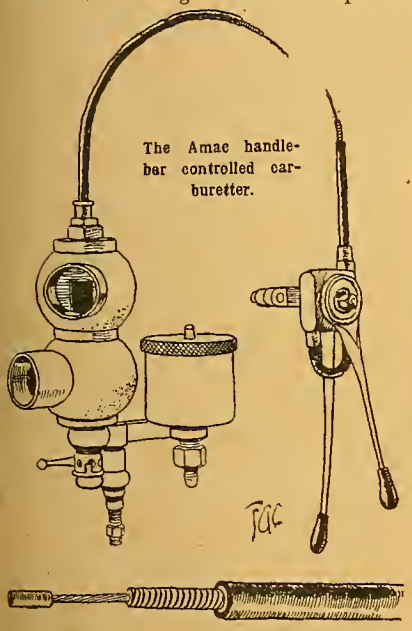
and prevents the nut turning back. If it be necessary to remove the nut the pin shown is inserted in the hole on the top of the nut, and pressure exerted on the spring which partly uncoils it, and allows the nut to be turned backward. (The Automatic Lock Nut Co., High Street, Birmingham.)

The Ideal ball bearing spring handlebar for motor cycles is an excellent device, with which we have had some experience, and therefore are in a position to recommend it with confidence to our readers. A lug on the bar enables it to be connected to the

Accessories and Equipment.

stem by means of an adjustable ball bearing, thus allowing a radial movement controlled by a coiled spring carried in a pocket formed on the lug on the stem. Any lateral loss of rigidity is taken up by the adjustable ball bearing, and in practice the steering of the machine is not affected in the least degree. Shocks which are often apparent even with the best spring forks are practically absorbed by this spring handle-bar, and do not reach the rider's arms. Of late these handlebars have been considerably improved, and also reduced in price. (S. Allen and Co., 8, Elswick Court, Northumberland Street, Newcastle-on-Tyne.)

The Amac carburetter is a device which is now so well known to our readers that a lengthy explanation is unnecessary. The most novel feature about the 1910 pattern carburetter is the method of carrying one of the control cables through the other, so that only one cable is visible on the machine. Among the other special

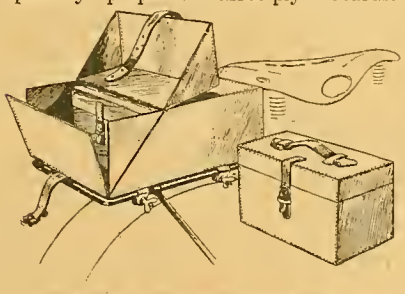


The Amac handle-bar controlled carburetter.

Showing the arrangement of control wire and cables

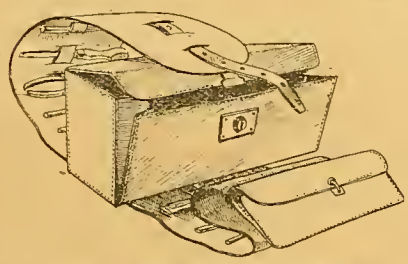
features of the Amac are a variable jet, by means of which it is possible to vary the amount of petrol passing through the jet orifice without dismounting, an improved system of air inlet by means of which a solid column of air is drawn up the centre of a tube which is fixed in the centre of the jet tube. The result of this ingenious arrangement is that the solid column of air and the hollow column of petrol meet together as they issue from the tubes, and are further mixed by colliding against an inverted cone at the top of the mixing chamber. Of course, air is drawn in *viâ* the usual choke tube in addition, but all the air enters the mixing chamber by one inlet. The ordinary jet and choke tube are supplied in place of the special one if desired. The Amac carburetter is beautifully made, and is an accessory which is fitted to a large number of up-to-date models. (Aston Motor Accessories Co., Ltd., Aston, Birmingham.)

One of the latest introductions is the Brooks motor cycle carrier bag, B9682. This bag is made with removable inside cases, and both these and the bag itself are manufactured throughout of best quality waterproof canvas on specially prepared three-ply boards.



The Brooks Motor Cycle Carrier Bag, with removable inside cases. The smaller of the two is for spares, the larger for clothing.

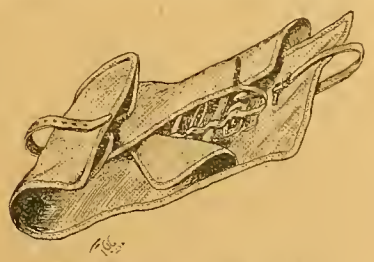
The two cases are of different sizes; the smaller of the two can be used for spares, tools, etc., the larger for clothing, and both, at the end of the journey, can be taken from the outside bag in a perfectly clean condition and ready for immediate transmission to the rider's room. That is an advan-



A combined Tool Roll and Case made by J. B. Brooks and Co., Ltd. The tools shown are not supplied with the roll-up.

tage best appreciated at the end of a long day's run, and we have no hesitation in saying that the adoption of this bag will add materially to the rider's comfort and convenience. (J. B. Brooks and Co., Ltd., Great Charles Street, Birmingham.)

Two items particularly appealing to motor cyclists are the Broadhurst tool rolls. These are strongly made of brown waterproof material with the edges bound to prevent wear. We

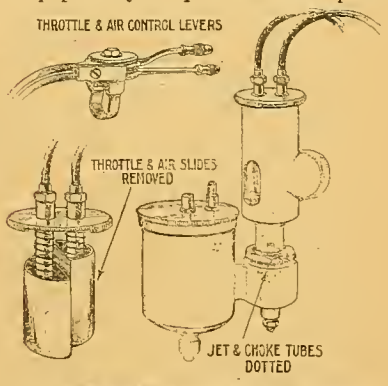


Broadhurst's Motor Cycle Tool Kit.

illustrate the larger of the two rolls, which contains twelve different tools of excellent quality and workmanship. The smaller roll has half a dozen less tools, but is otherwise of equal quality. The articles comprised in the larger roll are adjustable spanner, pliers, magneto knife, two box spanners, screwdriver, belt drill with clamping screw to hold belt in position, punch, oiltin, and right angle screwdriver for two positions. (R. Broadhurst, 25, Smithford Street, Coventry.)

The number of uses for bifurcated rivets in the construction of a motor cycle are numerous. Belts can be repaired with them. They are useful for making joints on straps, tool-bags, and other leather articles. We have even seen them used for attaching splashguards. These rivets are self-piercing, and can be obtained in boxes with and without washers. They enter largely into the construction of non-skid tyres, and as a box containing a gross with a tool for inserting and clinching them can be obtained for a trifle, they are a useful addition to any motor cyclist's home tool-kit. (Bifurcated and Tubular Rivet Co., Ltd., Gripwell Works, Warrington.)

One of the best known and most accessible carburetters with handle-bar control is the Brown and Barlow. Its popularity is quite sufficient proof

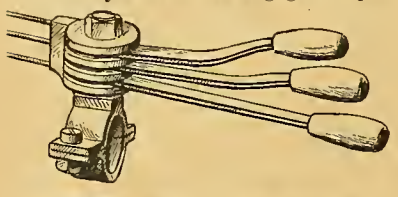


The 1910 Model Brown and Barlow Carburetter.

of its efficiency. Without lengthy description it will suffice to point out that the principal 1910 improvements are a bayonet-jointed top to the spraying chamber, which enables the throttle and air slides to be withdrawn for inspection by merely revolving the cover plate a quarter of a turn. The method of attaching the carburetting chamber to the float chamber is also made with a view to rapid dismantling. Half a turn of the hexagon nut shown surrounding the dotted lines of the jet and choke tubes is sufficient to release the spraying chamber, which is held in position when the nut is tightened by means of a conical contracting sleeve. The throttle and air control levers are extremely neat, and the jet can be removed in less than a minute by screwing it out from the underneath. If desired the makers of this excellent carburetting device supply a neat case containing four spraying jets of various sizes enabling the rider to tune his engine up for hill-climbs, consumption tests, or long-distance tours. (Brown and Barlow, Ltd., Holt Street, Birmingham.)

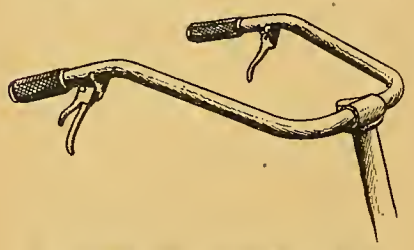
Accessories and Equipment.

It is largely owing to the enterprise of the Bowden Syndicate that handle-bar control has become so popular on motor bicycles. Towards the end of 1903 the syndicate was engaged in per-



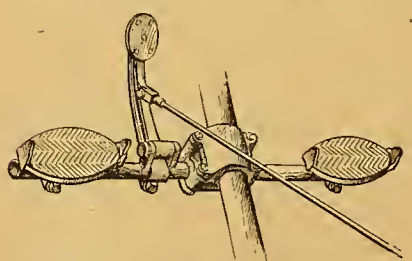
Triple Bowden Control Levers for throttle, air, and magneto advance.

fecting what has been one of the greatest boons with which motor cyclists have ever been favoured. In the last six years or so great improvements have been made, and it is interesting to note that nearly every machine at the Stanley Show was fitted with some form or other of the Bowden control, which has greatly simplified the handling of motor cycles, particularly on hills. The same company make a speciality of a triple set of levers with celluloid tips, conveniently placed so that any lever can be moved sepa-



The Bowden "clean" Handle-bar. The cables are threaded through the bars and issue at the lug in centre.

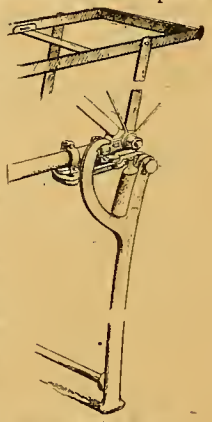
rately, which allows the spark, air, and throttle to be easily operated. The neat arrangement of the levers is clearly shown in the adjoining illustration. How neatly the Bowden control can be fitted to a modern motor bicycle may be seen by the above illustration of the "clean" handle-bar, in which the wires run through tubes and issue near the stem. The control of the magneto advance with the aid of a handle-bar lever is somewhat of a novelty which has lately been brought out by



Brake Pedal, Rod, and Foot-rests, one of the Bowden Syndicate's many accessories.

the company. Yet another novelty is the Bowden belt rim brake, which is operated by means of a rod. The accompanying illustration shows the control pedal attached to the footrests of the machine, the whole being a speciality of the Bowden Co. It will also be noticed that the pedal can be moved about and adjusted in almost any direction. (E. M. Bowden's Patent Syndicate, Ltd., 29, Baldwin's Gardens, Gray's Inn Road, W.C.)

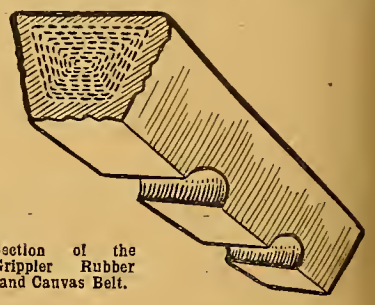
One of the most practical motor cycle stands on the market at the present time is the Bradbury, which possesses the advantage of being British made, of being rigid, safe, and very quickly put into action. It clips on to the chain stays, and thus enables the back wheel to be easily removed. The movable arm on each side has a slot cut into it, and attached to the fixed portion is a tube containing a spring plunger. To put the stand into action it is only necessary to kick it down with the foot, place the foot against the transverse bar and jerk the machine back, when the machine rests firmly on the stand. To place the stand out of action the machine is pushed forward, when, on the stand being put in its normal position, the spring bolt drops into the slot and it is impossible for the stand to fall down. The Bradbury stand can also be supplied with a luggage carrier, which does not in any way interfere with the latter. Now that the use of two-speed gears is on the increase there is a greater demand for footrests, and Joseph Bradbury has brought out an excellent pair of spring suspended footrests, which can be fixed to any machine, and, when fitted, can be adjusted to any angle to suit any height of rider. The rests themselves are covered with rubber matting, and are suspended on spiral springs. Another useful tool is the Bradbury valve spring lifter, which, by means of its compound action, enables the stoutest spring to be easily raised by a slight turn of the wing nut. Other specialities manufactured at the works at Braintree are excellent sets of tube spanners and other tools. (Joseph Bradbury, New Street Works, Braintree, Essex.)



The Bradbury combined Carrier and Stand.

The latest innovation on the part of the Chater-Lea Co. is a new plate clutch which supplants the old leather to metal clutch, and used on their three-speed motor bicycle. This new clutch contains thirty-eight spring steel plates, and like others of its kind possesses the advantage that it can if properly lubricated in the first place be slipped for some considerable time without damage. It possesses a groove which is cast on its outer shell to take a band brake, which allows the brake to be applied when the engine is in gear through the gearbox. The advantage of this is that when descending a long and steep hill the exhaust valve may be lifted, and in addition to the retarding effect set up by the internal friction of the engine and geare, a further gentle yet effective checking action may be applied. The footbrake rod connections on some of the machines have been very neatly arranged. We were also shown a very practical spring fork to which a front rim brake can be fitted; it was lately described in these pages. (The Chater Lea Mfg. Co., Golden Lane, E.C.)

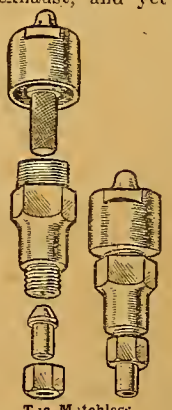
Grippler rubber belts are being marketed now by the Bancroftian Co.



Section of the Grippler Rubber and Canvas Belt.

These belts have a canvas core, and are exceptionally strong, though not expensive. Another accessory is a well-designed plug. The chief feature of the Bancroftian sparking plug is that the porcelain is hand-ground and not moulded, this process making it more immune from cracking. (The Bancroftian Co., 49, Bishopsgate Street Within, E.C.)

Two patterns of spring forks are sold by Collier and Sons. One is the Matchless girder spring fork—a scientifically designed contrivance which effectively absorbs the road vibration, allows a front brake to be fitted, and is totally devoid of side play. The Matchless spring fork attachments, which have been some years on the market, are chiefly suitable for bringing an old pattern machine up to date. The Matchless silencer is another excellent invention: it is most effective in deadening the noise of the exhaust, and yet it is devoid of back pressure, since with it fitted Matchless motor bicycles have scored heavily in hill-climbs, and have made remarkably good performances in speed events. The Matchless adjustable pulley when worked in conjunction with the firm's ingenious adjustable belt fastener are two further inventions of great interest. The pulley has slots of various sizes cut on the fixed portion, and in the movable flange there is a pin engaging in these. To alter the gear, it is only necessary to press in the outer flange and engage the pin in the slot giving the desired ratio. No tools are required. This firm has carefully

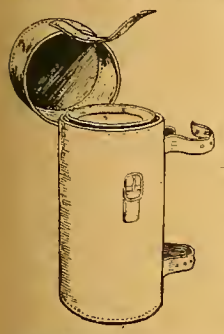


The Matchless Petrol Filter.

Accessories and Equipment.

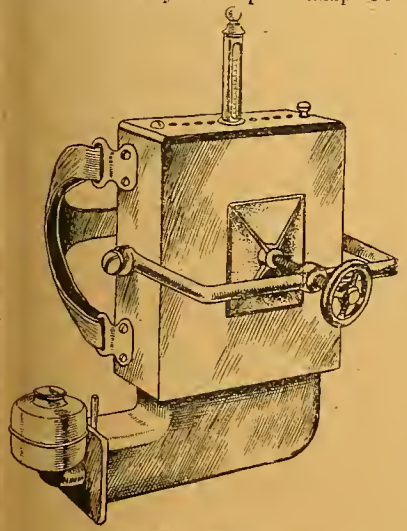
studied the question of brakes, and sells several excellent types which are applied to the belt rim. Two patterns of these are sold complete with footrests, on which the control pedal is fitted. In addition to many other useful accessories sold by this firm, there may be mentioned the Matchless petrol filter, which is neat, small, and light—an accessory which should be found on every up-to-date machine. Besides the above advantages, it is easily dismounted for cleaning. (Collier and Sons. Ltd., Herbert Road, Plumstead.)

It is often necessary to make a short *détour* from the route planned in search of fresh supplies of carbide, either because the lamp has not been replenished previous to starting, or the container will only hold sufficient for a few hours of night riding. To overcome this difficulty, the County Chemical Co., one of the best known firms in the trade, who supply excellent calcium carbide, have introduced a small leather case for carrying a ½ lb. tin of spare carbide. The tin fits the case exactly, and the latter is strapped to some convenient part of the frame, such as the seat tube below the tank. ½ lb. tins of carbide are not easily introduced into the dimensions of an ordinary toolbag; therefore this little case should appeal to those who have much night riding to do or who are apt to forget to replenish the generator.



The Conty Chemical Co.'s Case for carrying a ½ lb. tin of spare carbide.

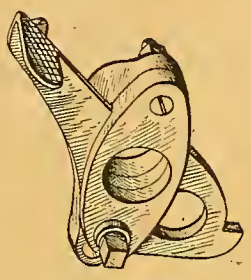
The G.B. vulcaniser consists of a cast aluminium generator heated by a small detachable methylated spirit lamp on the principle of the Bunsen burner. A thermometer is provided to register the temperature. This is fitted to a perforated plate, by means of which the heat can be regulated. It is suitable for all sizes of motor cycle covers and air tubes, and is beautifully made, although not expensive. The same firm are well known as makers of the G.B. motor cycle tyre repair outfits. (County Chemical Co., Bradford Street Works, Birmingham.)



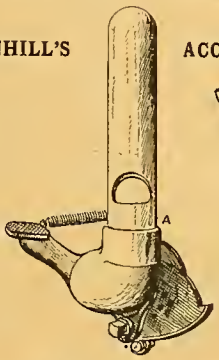
The G.B. Vulcanizer.

Dunhill's stock a large variety of motor cycle valises to be strapped to the rear carrier of the machine. The valise will carry sufficient clothing for one night, and the flaps are provided with pockets for maps, etc. The material consists of compressed fibre which is thoroughly waterproof.

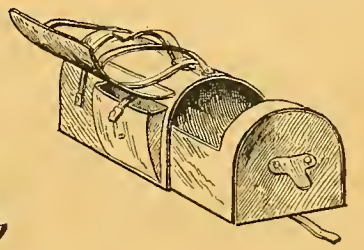
THREE OF DUNHILL'S ACCESSORIES.



A simple Exhaust Cut Out.



A Combined Cut Ont and Exhaust Whistle. The whistle unscrews at A to facilitate cleaning.



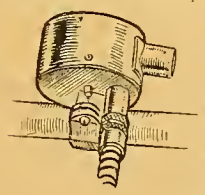
A neat Touring Valise.

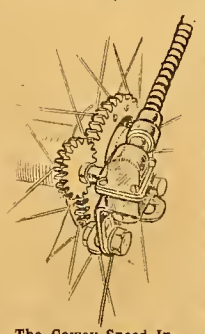
Several patterns, sold at different prices, are obtainable. In addition to the above, other interesting accessories are—a new cut-out, a motor cycle exhaust whistle, designed to be clipped on to the exhaust pipe and to be operated by the rider's foot, and a lens mirror lamp and generator. (Alfred Dunhill, Ltd., Euston Road, N.W.)

The Continental motor cycle belt of rubber and canvas carefully made to the correct angle of 28° is a remarkably reliable article, and is manufactured in sizes ranging from ⅝in. to 1in. The Continental belt punch is also an ingenious and useful accessory, as it is suitable for all sizes, and is fitted with an adjusting screw which presses the belt up to the top when the larger belts are used. Two other very useful accessories are the Continental rubber magneto cover, and a tyre puttee for the temporary repair of a badly gashed cover. (The Continental Tyre Co., Ltd., Clerkenwell Road, E.C.)

In the issue of November 3rd, 1909, reference was made to the practice of fitting a brake control pedal on the footrests, as in the event of the latter becoming damaged there was no means of operating the brake. Chase Bros., well-known as record breakers a few years ago, have in their latest brake brought out a dual control. The control pedal may be fitted either to the footrests or any convenient part of the machine, and at the same time a back-pedalling system is incorporated, so that in the event of the footrests becoming damaged, the rider has still means to apply his brake by back-pedalling. Also no matter whether the rider's foot is on the pedals or on the rests the brake is always ready at hand. In addition to the above, Chase Bros. make a back-pedalling brake only, and a compound brake, the control pedal of which is attached to one of the crank case bolts. (Chase Brothers, Station Road West Croydon.)

One of the most popular motor cycle speedometers is the Cowey. This instrument works on a different principle from most others. It is composed mainly of three fundamental parts—a heavy balance wheel, a spring, and a propelling device. The spring is connected up to the balance wheel by means of a small chain in such a manner that it tends continuously to draw the balance wheel in one direction (the direction of zero on the dial), while the propelling device gives a series of intermittent impulses to the wheel which tend to draw it in the opposite direction. The faster the machine travels, the more numerous will be the impulses given to the balance wheel by the propelling device, and the spring, having more work to do in overcoming the effect of these impulses, will be deflected and allow the balance wheel to be angularly displaced to a greater or less extent. The balance wheel, in its turn, operates the indicating pointer and moves it into a position which represents the speed at which the motor cycle is travelling. In actual practice the indicator is found to be equally steady on good and bad surfaces, and to be most reliable. The machine is of a handsome appearance, and easily read. An odometer is fitted to each model. The instrument is easily attached to any machine, whether fitted with spring forks or not. (The Cowey Engineering Co., Archer Works, Kew Gardens, S.W.)

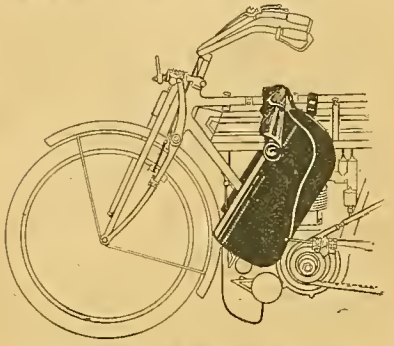




The Cowey Speed Indicator. The sketches show the gear driving mechanism attached to the front hub. The indicator is clipped to the handle-bar.

Accessories and Equipment.

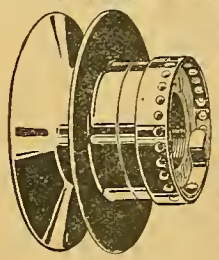
A type of weather guard which we have proved to be very efficient in keeping mud and wet from the rider's legs is the Cameron. One end of each guard is attached to the footrests and the other to suitable supports bolted



The Cameron leg shields. Note the waterproof apron, rolled up and strapped to the shield attachment on top tube.

to the top tube and hanging each side of the petrol tank. A weather-proof apron can be drawn over the knees and upper part of the body from a point near the top of the shields. When the apron is not in use it can be rolled up and fixed to the top of the shield by two straps as shown in the accompanying illustration. (Cameron's Weatherguards, 30, West High Street, Inverurie, N.B.)

The Clyno adjustable pulley is one of the easiest to manipulate and adjust, the movement being obtained by means of inclined planes on the faces of the sliding flange and collar. Holes are bored round the rim of the adjusting collar, in which engages a pin fixed to a circular spring, the spring being mounted on the main boss of the pulley. To adjust the pulley the long spring must be released with the finger and the collar turned either to the right or left, thus raising or lowering the belt in the pulley groove. The same firm also make an adjustable stand composed of one tube sliding in another, which can be locked at different heights, thus enabling the machine to be firmly supported on sloping or uneven ground. (The Clyno Eng. Co., Thrapston.)

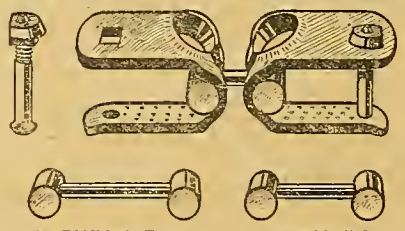


he Clyno Adjustable Pulley.

Hill's horn handle-bar grip is one of the refinements of motor cycling, as it is intended to prevent fatigue to the hands caused by gripping the handle too firmly. It is certainly a great boon to riders who wear woollen gloves, as it prevents the hands slipping off the ends of the bars. It has no square end to dig into the palms, which is always an annoyance to riders who indulge in long-distance riding. (Hill Bros., 32, Broom Close, Sheffield.)

Hill's Patent Handle Grip.

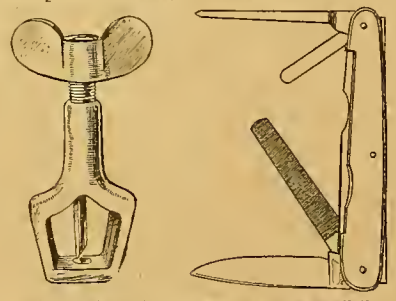
A belt fastener which is easy to connect and adjust is the D'All, which takes its name from the maker, Mr. J. B. Dall, of Ladybank, Fife. The outstanding features of this fastener are deep indentations on the inner faces of the jaws and curved ends to the bottom jaws. The former enable the belt to be gripped tightly, and remove some of the strain from the pin or bolt. The latter stop the cutting of the belt at the points where the jaws stop, the belt being very prone to cut when fastener is rounding the pulley. A special extension link is provided for use with adjustable pulleys. Electrical welding comes into the manufacture of this fastener, the connecting H links being made up of rollers electrically



The D'All Belt Fastener with adjustable links.

welded to short pieces of steel wire. Another device by the same maker is a combined gauge, injector, and tank syphon, which can be fitted to existing tanks by any amateur. No soldering is required, and it can be done without spoiling the enamel of the tank. It was recently illustrated and described in these pages. (J. B. Dall, Commercial Road, Ladybank, Fife.)

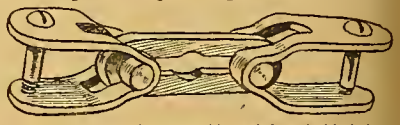
The firm of T. R. Ellin has been known for many years as makers of high-class tools. The two which appeal to motor cyclists are the small knife with file, etc., suitable for cleaning contact points, and a belt drill with the drill portion made like a carpenter's quill bit. The illustrations speak for themselves. (T. R. Ellin, Footprint Works, Sheffield.)



The "Footprint" belt drill and motor cyclist's handy pocket knife.

The Harrison back rest with automatic action was recently illustrated and described in these pages. It was exhibited at the Manchester Show and met with keen appreciation. Many tried the device, and we are informed by the makers that the universal opinion of riders was the necessity for a back rest on long journeys. (Harrison Automatic Back-rest Co., 205, Corporation Street, Preston.)

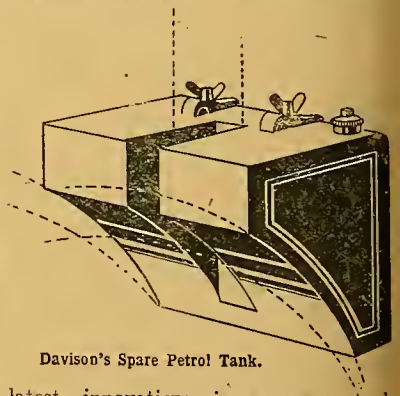
The Forward belt fastener is both detachable and adjustable, the adjusting links, three in number, fitting in slots in the clips. To insert a link it is placed vertically in the slot of the clip, the special grooved roller is



The "Forward" adjustable and detachable belt fastener.

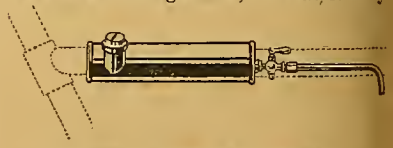
then inserted in the centre of the link, and the link pulled to the end of the slot, the remaining clip is inserted in the same way. Our illustration shows both clips in position on the longest link. (The Forward Cycle Co., 9, Edmund Street, Birmingham.)

From the very earliest days of motor cycling Mr. A. C. Davison has carefully studied the wants of motor cycle riders, and in consequence has succeeded in placing on the market numerous accessories of a thoroughly practical nature. One of the firm's



Davison's Spare Petrol Tank.

latest innovations is a spare tank holding a gallon of petrol, designed to be attached by clamps secured by winged nuts to between the end of the carrier and the mudguard. A black square is painted on the back, on which the number may be painted. The Davison paraffin tube is a handy way of carrying this useful medium for freeing the piston rings. It is attached by clips to a convenient frame tube, and has a small filling screw, so that it may



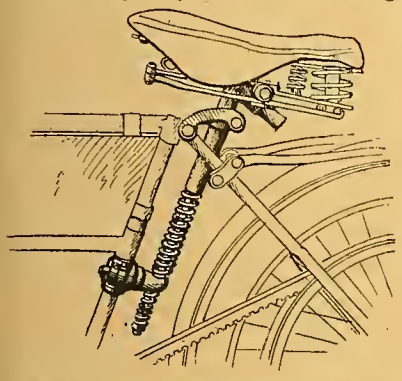
Davison's Paraffin Tube with tap.

be replenished without removal. At its further extremity it is provided with a tap and a conveniently curved tube. (A. C. Davison, 12a, Pleasant Row, Camden Town, N.W.)

The Perfecta spring seat-pillar, which is designed to fit all makes of motor bicycles is, in reality, a spring support designed to take the ordinary saddle-pillar. Mr. Cheswright, who with his brother manages the London business of the well-known firm of ignition specialists, Messrs. Lacoste and Co., is responsible for the produc-

Accessories and Equipment.

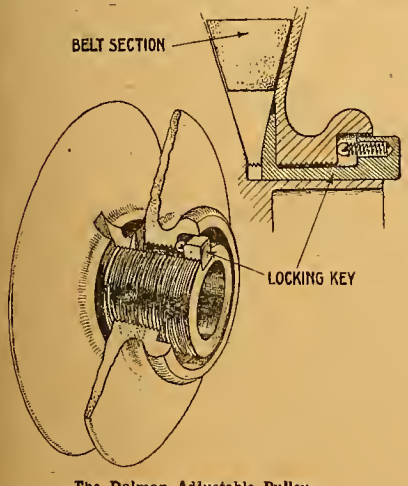
tion of this spring seat-pillar of excellent design. It consists of a tube to which a rod is attached, hung on two hangers secured by a bolt passing through the saddle lug of the frame; two small steel rollers act as bearings and allow the bolt to be tightened in the ordinary way without interfering



The Perfecta Spring Saddle Pillar, made to suit any pattern of motor cycle.

with the free movement of the hangers. The plunger rod referred to passes through a bearing clipped to the saddle tube of the frame, and has a spring above and below the latter, one acting under compression and the other acting as a check spring to counteract too sudden a rebound. Two models are manufactured, Model A for a machine having a clearance of 1¼in. or over between the back forks of the frame, and Model B where there is insufficient clearance. The support springs are also supplied in various tensions to suit the weight of the rider. With such a device as the Perfecta spring seat-pillar no motor cyclist need fear the effects of road vibration. (L. Cheswright, 184, Shaftesbury Avenue, W.C.)

The Dalman adjustable pulley is made on rather novel lines. Reference to the line drawing shows that the pulley consists of very few parts. There are the usual fixed and loose flanges, a spring controlled locking key, one spring, and one bolt, that is all. To adjust the loose flange the



The Dalman Adjustable Pulley

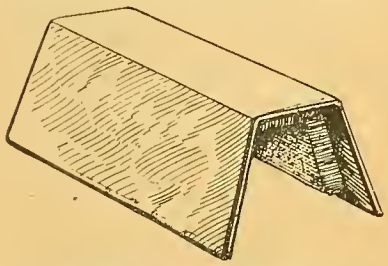
locking key is pushed inwards when the key comes out of engagement with the keyway machined on the inside of the loose flange. The loose flange can now be rotated to the right or left when the screw thread on which it revolves causes it to expand or contract the groove in which the belt runs. The locking key, of course, slides in a keyway cut on the boss of the fixed flange. As this has ample bearing surface, it should hold the loose flange quite firmly and prevent rocking. (J. Dalman and Sons, Birmingham.)

The East London Rubber Co. are making a special point during the coming season of their "Bar-Latch" motor cycle stand, a stand which, owing to its sound design and the ingenuity it displays, calls for the closest attention. The casting forms a clip and a bracket attached to the chain stays. On this casting is mounted a hinged leg set at an angle; this leg engages alternately with two spring catches, also mounted on the same casting. On the catch being released the leg moves from the horizontal position to the downward position, and automatically engages with a catch on the lower of the two bars; the machine is then

One of the East London Rubber Co.'s handy accessories, the Kerry Bar-Latch Motor Cycle Stand. When out of action, the legs are swung back to a horizontal position.

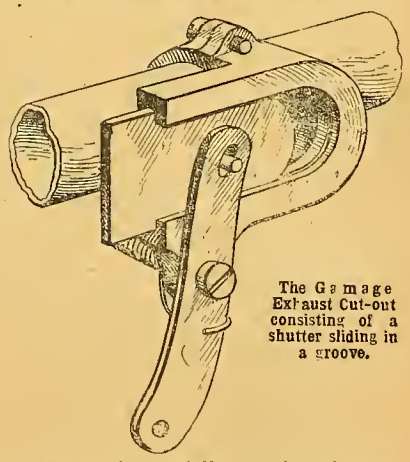
pulled towards the rider and the opposite leg treated in the same manner. The stand is extremely simple and very quickly put into action. To disengage the catch it is merely necessary to press the corner with the finger. The price of this stand has been considerably reduced. (The East London Rubber Co., 29-31, Great Eastern Street, E.C.)

Since the motor cycle first came into existence the firm of A. W. Gamage, Ltd., have never ceased to carry a large stock of accessories specially suited to readers of this paper, and with the increased popularity of the pastime, they have increased this stock to such an extent that the motor cyclist is nowhere better looked after than at this famous Holborn House. Leather belts especially require careful attention when the roads are muddy, as the particles of flint get driven into the leather and turn the belt into a grinding machine, which rapidly destroys the best of steel pulleys. In days gone by motor cyclists had to remove the flint with



Warren's Belt Cleaner, sold by A. W. Gamage, Ltd The interior is lined with file card.

an old pocket knife—a long, tedious, and dirty process. With the aid of a special belt cleaner now placed on the market by A. W. Gamage, Ltd., which consists of a steel wire brush, shaped to fit round the belt, this wearisome and uncleanly operation may be quickly and comfortably accomplished. The Gamage exhaust cut-out, which clips round the exhaust pipe, and consists of a shutter sliding in



The Gamage Exhaust Cut-out consisting of a shutter sliding in a groove.

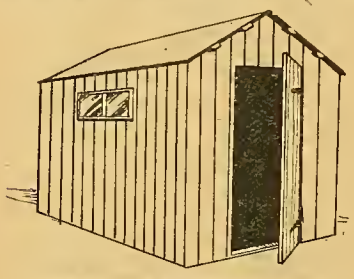
a groove, is specially worthy of attention, as it is well-designed and likely to prove gastight. The Gamage exhaust whistle and a small brass mascot, which may appeal to the more superstitious motor cyclists, and a set of folding pocket spanners, are a few of the many attractive motor cycle accessories which we recently inspected. (A. W. Gamage, Ltd., Holborn, E.C.)

The Hanover Rubber Co. sell a very excellent adjustable belt fastener with patent quickly detachable link. The Shamrock-Gloria belt has been improved in that the grooves are deepened, rendering the belt more flexible than before. The S.G. butt-ended air tubes, S.E. rubber-studded bands (which can be fitted to any make of cover), an excellent belt punch, a rubber strap with a hook at one end and an eye at the other, and a good elastic rubber handle-bar cover, complete the numerous accessories which this firm offers to the public. (The Hanover Rubber Co., 29-31, Old Street, E.C.)

Gardam and Sons, Staines, have produced for the benefit of motor cyclists and tricar owners some exceedingly

Accessories and Equipment.

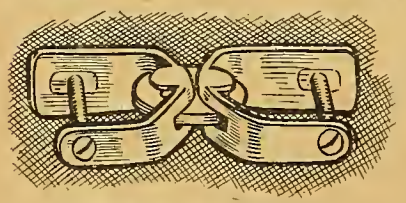
serviceable houses for the storage of their machines. These houses are strongly made of best planed, tongued, and grooved boards fitted on a strong frame, the roof being of matchboards, covered with patent Stoniflex roofing,



One of Gardam's Motor Cycle Houses.

requiring no tarring. If preferred, rebated or chamfered weather boards may be had. Prepared boards, ⅞in. thick, nailed to heavy joists, form the floor. A glazed window, the size of which varies according to the desire of the purchaser, is inserted, and the door is treated with a special wood preservative, being vermin and damp-proof, and a strong lock is provided. These houses vary in size from 6ft. to 10ft. in length, 3ft. to 8ft. in width, and 6ft. to 8ft. in height. Immediate delivery can be given, and the sections are plainly marked before leaving the works, so that re-erection is easy. Inside benches are provided, these being made to fall flat against the wall when not required, and a cupboard with lock completes the equipment of a most serviceable motor cycle house, which is reasonably priced withal. (W. Gardam and Sons, Ltd., The Wharf, Staines, Middlesex.)

In the early days of motor cycling when rubber belts were unknown, the twisted belt was going out of fashion, and the leather V belt had only just become popular, the hook fastener was still in vogue. It was a tiresome contrivance, and in those days belts were always a trouble to fasten up. With their Simplex belt fastener, Messrs. Herwin, Canny, and Co. were the first people to place on the market a really reliable invention, and to them the thanks of all motor cyclists are



The Simplex Belt Fastener.

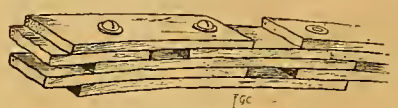
due. Of the reliability of the Simplex fastener there can be no doubt, as one of them was used by Collier when he won the 1909 Tourist Trophy Race. Instead of the screws engaging solely with the body of the fastener they now screw into special nuts and so a firm joint is made. The same firm makes also a detachable fastener and deals in general accessories. (Herwin, Canny, and Co., 36, William Street, Woolwich.)

Among the latest accessories marketed by W. W. Genn are an exhaust whistle for motor cycles which fits on the exhaust pipe, and is equally effective on engines with one or more cylinders. It is operated by foot, and is doubtless a splendid road clearer. Another item is a silencer fitted with exhaust whistle or cut-out. The silencer is cast in aluminium and is guaranteed silent. The "cut-out" cuts out half the silencer, and is made suitable for single-cylinder machines up to 4 h.p. and twin-cylinders up to 8 h.p. If desired an exhaust whistle can be fitted in addition. Mr. Genn also markets an auxiliary air inlet which fits on the inlet pipe and gives a wider range of mixture. It is also useful on a hot day when the engine sometimes requires more air than can be given by the additional air openings to the carburetter. (W. W. Genn, Gap Road, Wimbledon, S.W.)

The Druid Girder Spring Fork is very effective, and is seen on many up-to-date motor bicycles.

Sufficient proof of the efficiency of the Druid spring fork is to be found by reason of its great popularity. It is fitted to many up-to-date machines made by big firms. in addition to being in strong demand as an accessory for bringing old pattern mounts up to modern requirements. It is neat in appearance, and, moreover, permits of the use of a front rim brake. (A. Drew, Conybere Street, Birmingham.)

The Lomax belt is built up of five overlapping sections of chrome leather, fastened together with copper rivets, as shown. Washers are placed under the screws on the top ply to prevent the

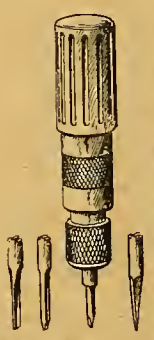


The "Lomax" Built-up Belt.

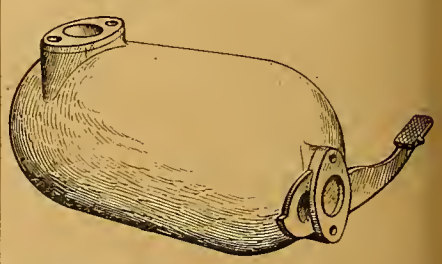
heads pulling through under the strain of transmission. In place of the usual belt fastener, screws are fitted to a few of the joints instead of rivets. All that is required is to remove one of the screws when the belt can be adjusted to an inch. (The Lomax Tyre Co., Birmingham.)

The "Clair" silencer, sold by J. C. Lyell and Co., consists of a series of metal cups which fit one into the other, leaving a space between each at the bottom. The holes in these cups are set in diametrically opposite positions, or if it is desired to give a freer passage to the exhaust gases they may be set in line. Another ingenious device for which the same firm are responsible is the concentric Pilot valve, which really consists of two valves, one inside the other. It is not always realised that the exhaust valve has to open against great pressure, and in the case of the concentric Pilot valve (see illustration on the next page), the area of the small internal valve offers a smaller resistance to the pressure of the gases, and also serves to conduct away part of the charge before the large valve opens. The makers' statement is that the ordinary valve has to be opened against a total pressure varying from 40 lbs. to 120 lbs. according to the area of its head. For example, a valve with an area equalling one square inch, opening against a pressure of 40 lbs., at the rate of ten times per second (1,200 r.p.m.), has to overcome a resistance equivalent to 24,000 lbs. per minute. It will, therefore, be seen that this is the cause of a very seen that this is the cause of great loss of power. (J. C. Lyell and Co., 55, Victoria Street, S.W.)

One of the most recent accessories to be seen at Hunt's Stores is a particularly neat silencer in aluminium with a brass foot-operated cut-out. This silencer is claimed to be most efficient in deadening the sound of the exhaust, as the exit holes are many and small, and are largely distributed over the exterior surface. Hunt's Stores have also just introduced a small, neat, and inexpensive air inlet for fitting to the inlet pipe, which should be a boon to those who study economy in petrol consumption. It consists merely of a cap with a milled head fitting over a short tube connected with the inlet pipe. In each are holes placed at intervals, and when these coincide air is admitted to the mixture. The control is effected by rotating the milled head of the cap. Two other noteworthy specialities are a deep note horn known as the Serpentine, a patent leather magneto cover, and a new all-metal tool pad. The latter accessory is particularly interesting, as it is both well made and ingenious; the



Hunt's Tool Pad.

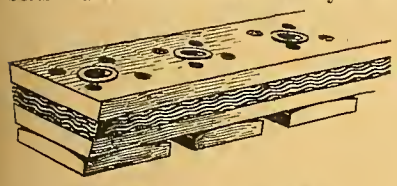


A Cast Aluminium Silencer with foot-operated cut-out. Sold by Hunt's Stores.

chuck form tool holder is attached to the receptacle which serves as a handle, while the tools contained are of a useful nature. (Hunt's Stores, Newgate Street, E.C.)

Accessories and Equipment.

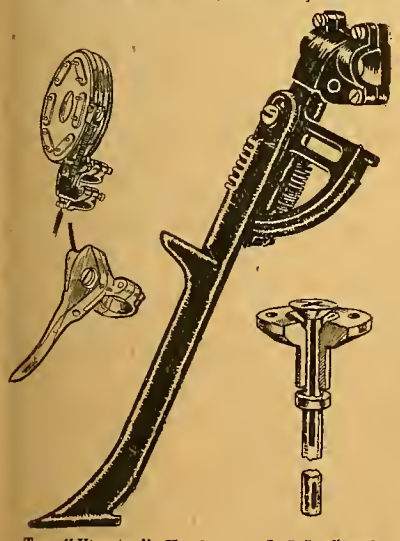
Pollin belts are built up with two or more layers of rawhide with ordinary leather V pieces riveted on the underneath at intervals. Some of these belts have an intermediate layer of



Pollin's Rawhide and Canvas Belt.

canvas to prevent stretching. They are soundly constructed articles, and from experience we have had with them, know that they give satisfaction. (W. Pollin, Spalding, Lincs.)

The Ukantes stands are made in several models which work on practically the same principle. Part of the casting forming the bracket which is attached to the chain stays takes the form of a quadrant, the extremities of which are slotted, and at the upper end of the leg is a slot, through which a pin passes. The leg is provided with a spring which keeps it normally up against the pin so that a boss on the leg is in engagement with one of the slots on the quadrant. There is a further boss on the outside of the leg enabling the latter to be disengaged from the slot by means of the pressure of the rider's foot. The Ukantes quickly applied prop works on this method, and when in action projects outwards, and allows the machine to be propped up when the rider wants to make a brief halt. When out of action the prop is parallel with the chain stays. The Ukantes popular stand works on a similar method to the above. To put the stand into action, it is only necessary to pull out one of the legs, lean the machine a few inches away, pull down the leg until it engages in the correct slot, then pull the machine forward, and do the same with the other leg. The Ukantes La Grande stand is the same except that the leg is provided with a trigger-locking device. The Ukantes sidecar jack works similarly, but, of course, only one is used to jack the wheel off the ground. This stand may be put into operation by the foot. It is also made in two sizes for heavy and lightweight motor bicycles. Price and Co. also make a speciality of front wheel stands, the advantages of which are appreciated by all who have suffered front wheel punctures. A brake which is very quickly and easily dismounted, and thus allows the back wheel to be removed without difficulty is the Ukantes duplex and triplex band brake for rear and front wheels. It consists of a coil with a hook at either end loosely encircling the belt drum, of which one hook is attached to the bracket fastening to the chain stay and the other to a link fastened to the end of the Bowden control wire. (Price and Co., 25, Rosebery Avenue, London, E.C.)



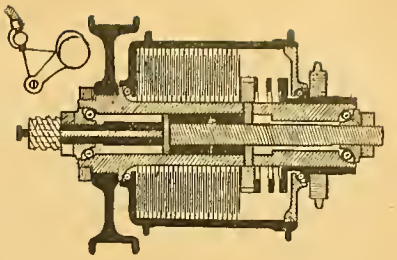
The "Ukaotes" Hand-controlled Band Brake and quickly-applied Prop.

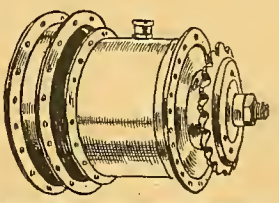
J. C. Lyell and Co.'s Concentric "Pilot" Valve (see previous page).

"Ideal" Sprlog Fork.

The Ideal spring fork is an attachment which can be fitted to any motor bicycle. It was recently described and illustrated in these pages, but we now reproduce a line drawing of this article, which renders the design somewhat clearer than the half-tone block from a photograph previously published. It will be noticed that the shackle plates are attached at three points, viz., the ball head clip, usual fork crown, and the fork ends. The Ideal fork enables a front wheel rim brake to be fitted, is a well constructed article, and should appeal to riders who possess machines with rigid forks and are desirous of bringing their mounts more up to date. (Ideal Spring Fork Co., Gilbert Road, Belvedere, Kent.)

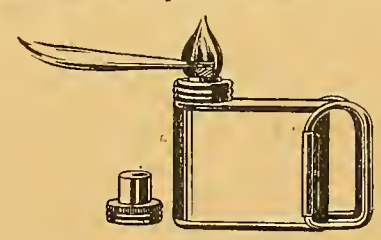
The Harris clutch, which is of the plate type, is fitted in the rear hub. The chief advantages of a clutch are that it is possible to disconnect the drive of the engine from the road wheel for controlling the speed of the machine in traffic, and it also enables a standing start to be made with the rider seated in the saddle. The clutch consists of a number of plates, half of which are connected to the hub barrel and the remainder to a sleeve attached to the rear belt rim. When the plates are separated the belt rim and engine can be revolved by means of the pedalling chain, while the road wheel remains stationary. When the plates are forced together by a spring (operated by a lever on the handlebar or footrest) the friction between their surfaces locks the sleeve plates to the hub plates, and in consequence the road wheel, hub, sleeve, and belt rim rotate together as a solid mass. The clutch hub is no wider than an ordinary hub and belt rim, and will fit many machines without structural alterations. (Harris, Ltd., Upper Highgate Street, Birmingham.)





Section and Elevation of the Harris Plate Clutch Hub.

The firm of Neville, Williams, and Co. are responsible for the production of a new soldering medium known as Tinol, which is a grey paste sold in air-tight tins, consisting of the alloy of metals forming solder reduced by a special process to an exceedingly fine powder, and mixed with a flux which is free from acid—a point of especial importance in soldering electrical joints. In actual practice, Tinol is exceedingly easy to manipulate, as under ordinary circumstances no previous cleaning of the parts to be soldered is necessary. We have proved the efficacy of the material after practical tests. The

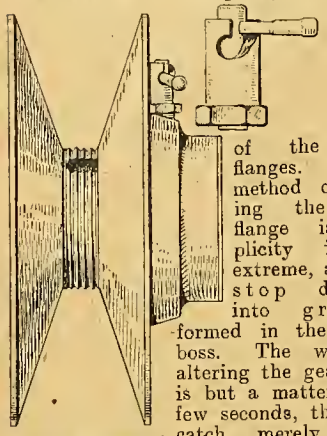


The Tinol Soldering Lamp.

Tinol cored soldering stick is another item of interest to those who do their own repairs. It consists of a tube of solder filled with Tinol paste, and it possesses the advantage of enabling soldering to be carried out without the aid of any further flux. To facilitate the use of Tinol, a neat blow lamp is supplied burning methylated spirit, which works admirably. (Neville, Williams, and Co., 11 and 13, Southwark Street, S.E.)

Accessories and Equipment.

A simple adjustable pulley of new design and requiring no tools to operate it is the "Moveo." A large range of gear ratios may be obtained with the use of this pulley on account of the deep flanges. The method of locking the loose flange is simplicity in the extreme, a spring stop dropping into grooves formed in the pulley boss. The work of altering the gear ratio is but a matter of a few seconds, the small catch merely being raised up the inclined surface of the guide, when the outer flange is free to move, the stop fixing the flange as soon as it registers with one of the keyways. (J. H. R. Loxham and Co., Charnley Street, Preston.)



Loxham's "Moveo" Pulley.

The Wolf tool-kit consists of a leather roll-up, containing eleven tools. The case is sold complete with the tools, or each tool can be supplied separately. Another accessory is the Wolf double purpose petrol can. This has a funnel, permanently attached to the top of the can, fitted with gauze strainer, and flexible metal spout. (Wolf Engineering Co., Ltd., Pountney Street, Wolverhampton.)

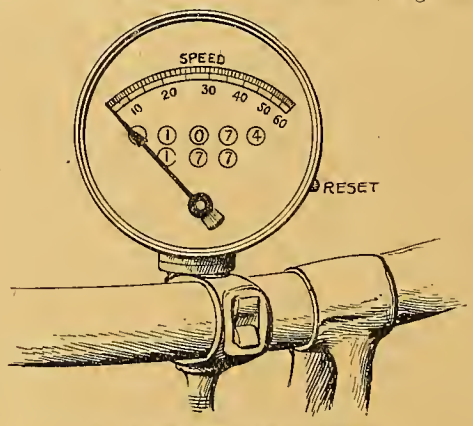
One of the latest introductions into this country is the Clarion sweet chime bell, which gives a clear ringing note, and for lightweights and silent motor bicycles gives "audible and sufficient warning" of a pleasant nature. For many years motor cyclists have been on the look-out for an odometer at a low price. Their old and faithful friend the Veeder is now sold in a strong model suitable for motor cycle use. The Veeder motor cycle trip cyclometer is larger and more substantial than the old cycle type, is made for 24in., 26in., or 28in. wheels, the miles are shown in white figures on a black background, and the tenths now carried well away from the other figures in red, also on a black background. The star wheel is much stronger than previously, and a special friction device is employed, which prevents the wheel from spinning when the machine is travelling at a high rate of speed. The new bracket designed to fit this instrument is adjustable to fit any make of machine. It is constructed to bring the cyclometer as near the centre of the wheel as possible to allow the striker to describe as small a radius as possible so as not to hit the star wheel unduly hard.

Clarion Chime Bell for use on motor cycles. It is sold by Markt & Co.

The Service Co.'s Waterproof Lamp Cover—excellent for those who wish to keep their lamps clean.

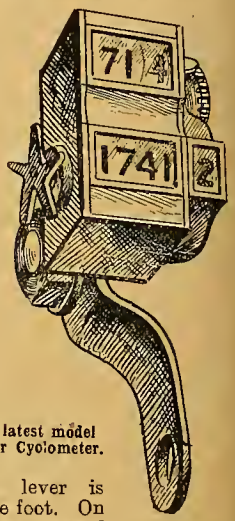
A long stout clamp holds it in position. The roller lessens the wear on the star wheel by giving a rolling instead of a sliding contact. Another accessory for which the firm are well known is the motor cycle speedometer—an instrument which has proved its reliability times without number. It is made in three types, the most attractive of which is the Model 32, fitted with maximum speed hand total register and trip odometer. (Markt and Co., 6, City Road, E.C.)

The Coronet adjustable pulley is claimed to give a range of gear ratio from 3 to 1 to about 7 to 1. The boss of the fixed flange is screwed to take the loose flange, and on it and the loose flange are cut keyways in which a key is free to slide. The key is provided with a slot engaging with the loose flange by which the key is made to travel inwards and outwards as the flange is screwed up or down on the boss. To fix the loose flange a knurled lock ring is provided. (Booth's Motories, Charles Street, Halifax.)

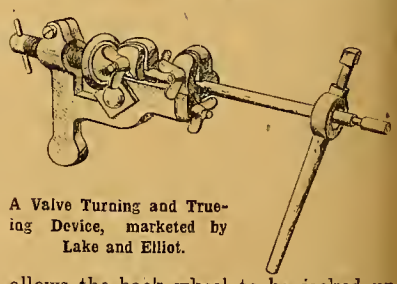


The Indicator of the Jones Speedometer.

The firm of Lake and Elliot have for many years devoted their attention to the wants of motor cyclists. Being supplied with a well-equipped factory they are capable of turning out the very best class of work. As they were cognisant of the clever designs executed by A. D. Powell, Leicester, they have purchased the patents covering his "Fit-all" and "Hub" two-speed gears, and are now manufacturing these. It will be remembered that the Fit-all gear is attached to the crankshaft of a motor bicycle, and will fit any standard make. The Hub gear has been considerably improved. On the high speed (and this is one of the improvements) the drive is engaged by means of a bronze internal expanding ring, 2in. wide. We have purposely dealt with these gears in brief, as they hardly enter into the scope of this special issue. One of the productions for which Lake and Elliot have been most famous in the eyes of motor cyclists is the Millennium express stand; this is a remarkably ingenious device. It is light, scientifically constructed, and possesses the advantage of being very quickly released. To put the stand into action it is lowered to the ground, and the machine is jerked up against it. To release the stand, a specially long lever is operated by the foot. On this lever being pressed the stand is released, and flies quickly back to its normal position. Another ingenious device is the Millennium front wheel combined carrier and stand, which provides an excellent carrier over the front mudguard, and also allows the back wheel to be jacked up in the case of a puncture. Quite an ingenious tool is the Millennium valve truer, for which motor cyclists are sure to have need sooner or later in their experience. When a valve gets so pitted that grinding would be a most tedious process such a tool as the Millennium valve truer is a real boon. It is remarkably simple, and consists of a bracket provided with two bearings for carrying the valve stem. When the valve is held absolutely parallel its face is brought up against an adjustable cutter. A long lathe carrier supplied with the tool is attached to the end of the valve, and by this means the latter is rotated, and the face trued up in a remarkably short space of time. The valve truer may be held either in the hand or in a vice. A tool for similar work, which



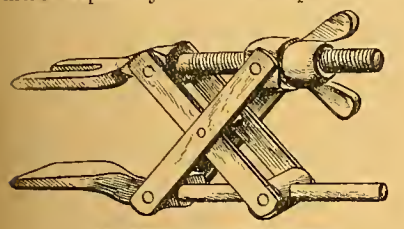
The latest model Veeder Cyclometer.



A Valve Turning and Trueing Device, marketed by Lake and Elliot.

Accessories and Equipment.

displays great ingenuity, also sold by Lake and Elliot is made for truing valve seatings, but as this is a job more especially for the repairer it



Lake and Elliot's Valve Spring Lifter.

needs only a short reference. One of the neatest valve spring lifters we have yet seen is the Millennium. It will be seen from the accompanying illustration that its ingenious design allows it to have an entirely parallel action, enabling it to be free from any tendency to bend the valve stem. After the jaw has been inserted underneath the cotter, if the wing nut is turned it causes both the jaws to open and keep perfectly parallel in so doing. Another excellent set of box spanners for use on motor cycle engines are known as the Midas. There should be a ready

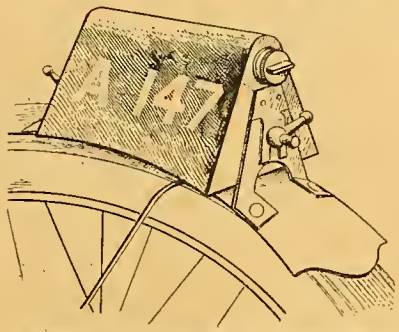
The "Autogrip" Spanner.

demand for these, as they are compact and useful. The tommy bar is provided with a screwdriver end which fits into the square provided with the set. When this is placed in position the rest of the tubes are slipped over, and the whole forms a

Lake and Elliot's Stand.

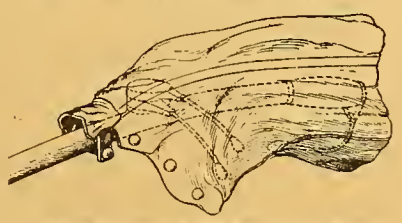
particularly neat screwdriver with a convenient handle. The Autogrip spanner is another most ingenious tool. This can be instantly fitted on to a nut of almost any size, and the force exerted to turn the nut keeps the jaws firmly closed, so that the nut cannot be damaged. By pulling out the lower jaw and replacing it, three different adjustments may be obtained. Two sizes of spanners are sold, one taking sizes from zero to 1in., and the other from zero to ⅜in. When not required as a spanner the tool may be used as a pair of pliers. (Lake and Elliot, Albion Works, Braintree, Essex.)

The Service Co., where so many up-to-date accessories are always to be found, has just introduced a spare petrol tank and number plate. The tank, which is wedge-shaped, carries about a quart of petrol, and is shaped



This spare Petrol Carrier fits on the front mudguard extension, and is sold by the Service Co.

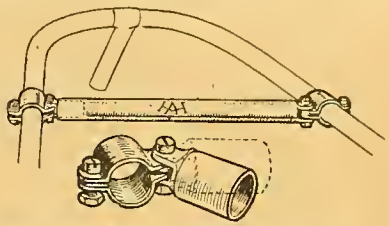
to fit on to the front mudguard extension by the aid of two brackets, which are fitted to the mudguard, where they remain permanently. The spare can slips into these two brackets, and is then locked in position by thumbscrews. On each side the front



A Hand Protector for cold weather—it enables the control levers to be operated without removing the hand.

number may be painted. It is also interesting to note that the tank may be readily detached and its contents poured into the main petrol reservoir. Another accessory which should appeal to all-weather riders is the Service "hand muff" lined with fur. At the extremity of the muff there is an opening, which can be closed by the aid of two patent fasteners, through which the control levers are passed, so that they are always in the muff. The muffs are also supplied with a steel stay running across the top to keep them clear of the control levers. The Service Co. are also marketing a rubber cover for the high tension terminal of magnetos. Yet another accessory sold by the same company is their special belt, which, we understand, is giving great satisfaction. The belt consists of two strips of chrome leather, on which are built rectangular pieces of raw hide leather at intervals. The result is an extremely flexible and highly efficient belt. (The Service Co., Ltd.), 292-293, High Holborn, W.C.)

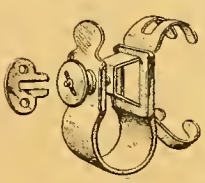
The H.H. handle-bar is a transverse adjustable bar for fixing across existing handle-bars of any make for carrying the watch, speedometer, or other similar accessory, fitted with a loose



Hunt's Handle-bar Attachment for carrying watch, horn, speedometer, etc.

plug end and clamps (to fit it, it is only necessary to remove the plug and cut the bar to the desired length, and then replace the plug.) (A. H. Hunt and Co., 115, Cannon Street, E.C.)

The Metropolitan Machinists' Co. is specially devoting its attention to motor cycle accessories, since the latest catalogue devotes no less than sixty-six pages to this subject. The number of items of interest sold by the Metropolitan Machinists' Co. is very great, nearly every well-known accessory being stocked. Among the numerous samples recently shown us we noticed an excellent solid leather telescopic valise, strengthened inside by means of a skeleton iron frame, which is provided with substantial straps and is sold at a very moderate figure; a tubular motor cycle luggage carrier, which can be supplied to fit any make of motor cycle, which is at once strong, well made, and by no means unsightly; and the "Off-an-On" motor cycle tyre lever made of the best forged steel. This is really a useful accessory. One end of it will act as a screwdriver, while the other, by means of which the tyre is levered on or taken off, performs its functions in the most satisfactory manner. One side easily slips underneath the beading to remove the cover, while the other when the lever is raised forward allows the beading to drop into the rim. Many motor cyclists



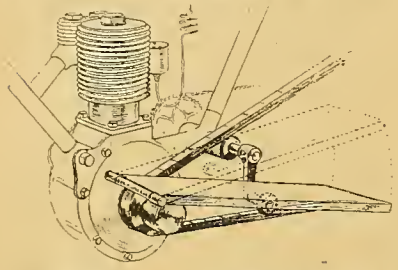
A simple Watch Holder with key. Sold by the Metropolitan Machinists' Co.

A useful combined Tyre Lever and Screwdriver sold by the Metropolitan Machinists' Co.

favour handle-bar watches, and one of this firm's specialities is a thiefproof handle-bar watch holder, quite an ingenious device, which, by the aid of a special key, prevents the watch or holder being removed when once locked. (The Metropolitan Machinists' Co., Ltd., 75, Bishopsgate Street Without, E.C.)

Accessories and Equipment.

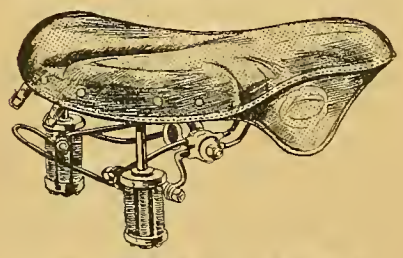
The L.M.C. Auto Varia pulley and free engine device enables a higher gear ratio to be used for the level than would be advisable with any type of fixed pulley, with a correspondingly low gear ratio for hill-climbing. The loose flange of this pulley is controlled by springs of a strength proportionate to the power of the engine. When



The "Auto-Varia" Free Engine Pulley and Footboard Starting Device, which obviates the necessity for pedals.

running on level ground the pulley flanges are close together, and the belt at the highest point in the groove. On hills the extra pull on the belt compresses the springs in proportion to the gradient, so opening the pulley groove, and lowering the gear ratio. If desired, a handle-bar controlled free engine is obtainable by opening the pulley groove until the belt drops on to a ball bearing, when the engine is free to run without propelling the machine. (The Lloyd Motor Co., 132, Monument Road, Birmingham.)

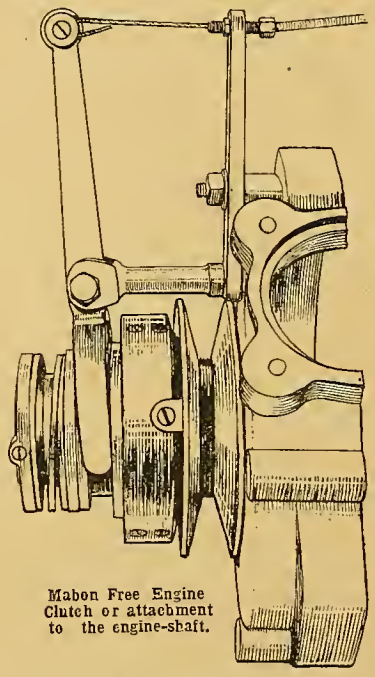
The latest introduction of Lycetts, Ltd., is a new pattern motor cycle saddle. The framework is made of six steel rods. Two support the rear cantle, the remaining four being connected two each to the top caps of nests of five coil springs shown in the illustration. The rods, to which are fastened the bottom caps of the nests of springs, are fastened to the rear cantle. There is no front spring.



Lycett's Latest Saddle with padded top and new rear springing arrangement.

When the rider's weight is in the saddle it is free to rise and fall the distance shown between the top cap of the springs and the underside of the cantle, the movement being controlled by the springs, which are always in tension. The top is of specially selected leather and well padded. Lycetts make excellent toolbags for attachment to the top or sides of the rear carrier, and also make the rear carrier itself. This latter is made of steel tubing, and is attached to the frame in the usual manner with clips. (Lycetts, Ltd., The Saddlery, Birmingham.)

The Mabon clutch has now been brought to a high state of perfection. It is constructed on the usual principle, there being seventeen plates fixed alternately by means of keys and keyways to the engine-shaft and to the movable portion of the clutch. One of the latest improvements is the fitting of an adjustable pulley, which is carried out in a particularly neat manner. The hollow clutchshaft is now slotted so that the pulley and clutch may be removed bodily, and the engine-shaft need not be disturbed. The arm holding the clutch fork is also slotted so that it may be adjusted to suit all sizes of crank cases, and the fork pins may be arranged to take up their positions centrally. The adjusting screw which allows the tension of the clutch spring to be varied screws on

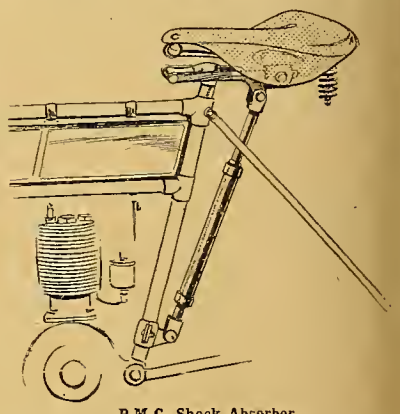


Mabon Free Engine Clutch or attachment to the engine-shaft.

to the hollow shaft, and is provided with a grub screw so that it is firmly locked into position. (A. Mabon, 54, High Road, Finchley, N.)

The S.A. valve seater and truer is designed to facilitate grinding of exhaust and inlet valve seats. A tool and two cutters are supplied. One cutter is used in place of the valve, and by means of hand pressure only a light cut is taken over the seating in the valve chamber, and unless the seating is very faulty only a very minute portion of metal is removed. The seating of the valve itself is then trued by placing the stem through a hole in the other cutter (this latter being held in the hand or a vice) and gently rotating the valve by means of a screwdriver or other tool. It is claimed that the faces produced by these cutters enable the valve to hold petrol without further treatment with any abrasive compound. The cutters are made for all standard makes of motor cycles, and the cost is most reasonable. (Southern Automobiles, Ltd., 102, Westcombe Hill, Blackheath, S.E.)

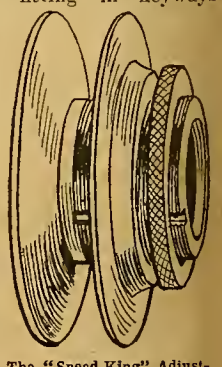
The P.M.C. shock-absorber is one of the numerous accessories marketed by the Premier Motor Co. The special saddle L pin is hinged and connected to a tube telescoping into another, which is again hinged to a clip fastened round the seat tube just above the bottom bracket. The movement of the telescoping tube is controlled by two strong coiled springs, one taking the downward thrust and the other the recoil. These springs absorb



P.M.C. Shock Absorber.

shocks which would otherwise be transmitted to the rider when the machine was ridden over rough ground. The P.M.C. shock-absorber is made to fit any make of motor cycle, but it is advisable when ordering to give the diameter of the L pin and seat tube and distance between top of seat lug and bottom bracket. The P.M.C. lamp and generator have made a name for themselves. (Premier Motor Co., Dartmouth Street, Aston Road, Birmingham.)

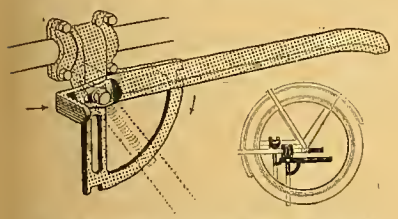
The Speed King adjustable engine pulley is marketed by Farrar's Motor Exchange. It consists of the usual fixed flange and boss and a loose sliding flange, which is prevented from turning by keys fitting in keyways cut on the boss of the fixed flange. To lock the loose flange in position, a knurled locking ring is provided, which screws on a thread cut on the boss. A three-note Fanfare horn, Farrar's Special flexible canvas and rubber belt, and the Albion self-lighting gas lamp are among the accessories handled by this firm. The lighting device for the lamp consists of a spring plunger, which operates on the principle of a flint and steel. When the plunger is drawn out and released smartly, a shower of sparks is directed towards the burner, and the gas is thereby ignited. (Farrar's Motor Exchange, Albion Works, Square Road, Halifax.)



The "Speed King" Adjustable Engine Pulley.

Accessories and Equipment.

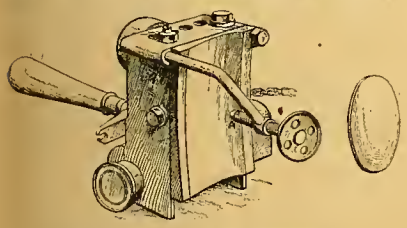
The S.N.P. stand is attached to the chain stays, and does not interfere with the removal of the back wheel. The legs extend horizontally when out of action, and to put the stand into



A quickly-operated stand called the S.N.P. (Smith, North and Priestland). It is attached to the chain stays.

action each leg is pulled rearwardly and then pushed down, when a catch, operated by a spring, drops into a groove at the opposite end of the quadrant. (Smith, North, and Priestland, Birmingham.)

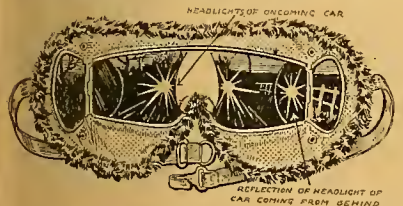
A small portable vulcaniser especially useful to motor cyclists is the H.F. "Baby." Vulcanising tyre patches is the only really safe and sure method, and when possible motor cyclists should have patches vulcanised to punctured or burst tubes. There



Harvey Frost's small size Vulcaniser.

is then no fear of the patch coming loose owing to heat caused by friction. (Harvey Frost and Co., Great Eastern Street, E.C.)

The head of the firm of W. and R. Jacobs is himself a keen and active motor cyclist, and so is thoroughly appreciative of the wants of his brethren of the self-propelled wheel. One of the latest accessories placed on the market by his firm is the Le Grand Reflex goggle, which is provided with



Le Grand's "Reflex" Goggles, which are fitted with side mirrors to reflect overtaking traffic.

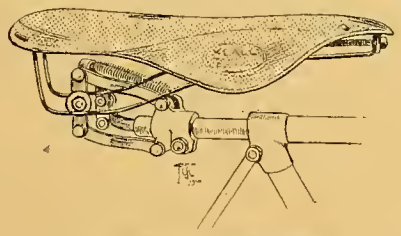
mirrors at each side of the main front glass, in which, if the wearer cast his eyes towards them, he clearly sees what is behind him. Under normal conditions, we are assured, the presence of these mirrors is not noticed. In addition to the White's economisers for controlling the main air supply of all standard makes of carburetters, and rendering the most refractory of the latter easy starting, the firm sell excellent tube and belt cases, known as the Electary, in three types. Two will hold either a tube or a belt, and the third will take both. Metal clips are supplied for attachment to the frame of the machine or the side of the luggage carrier. In ordering these, if the approximate length of belt is stated a case of the correct size will be sent. In addition to the above, we were shown numerous electrical and other accessories. (W. and R. Jacobs, 39c, King William Street, E.C.)

For several years motor cyclists have known the Stanley Dermatine motor cycle belt as the product of much thought and many experiments. It is claimed for it by its makers that it is the most flexible belt on the market. A rubber casing, grooved in the bigger sizes and plain in the small size,

The Stanley Dermatine Belt, and Hook Fastener supplied with links of varying lengths.

covers a strong though pliable core, and the belt is made in four widths, varying from ⅝in. to 1in. With this belt it is advisable to use a Stanley detachable or adjustable fastener, either of which serves its purpose equally well, and it is worthy of note that the hook of the latest patterns is guaranteed against breakage. (The Stanley Dermatine Motor Belt Co., 32, London Road, Bromley Kent.)

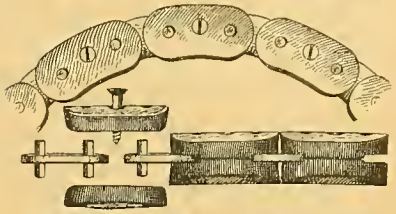
The XL'All spring saddle has been slightly altered in design since it was last described and illustrated in these pages. Reference to the illustration



The latest XL'All Spring Saddle.

shows clearly the double link construction, which gives a parallel easy motion in any position. The springs are fixed to an arched bridge piece connecting the links, which allows the saddle to clear the mudguard. The saddle is fixed to the horizontal extension tube as shown. An excellent type of spring fork which is not at all difficult to fit is also sold by the same firm. (XL'All Co., 6 and 7, Moseley Street, Birmingham.)

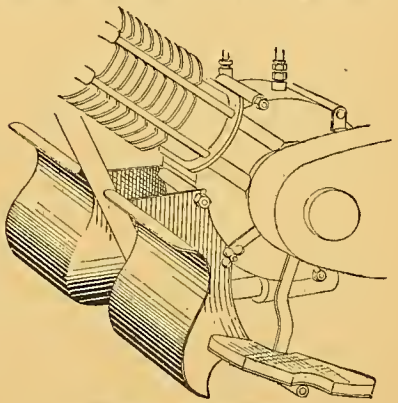
Whittle's patent link grip belt is designed to ensure great flexibility, combined with gripping power, so that when the belt is slack it will still drive. It is a combination of leather blocks, cut to fit the V groove of the pulley, and steel links. The V leather sections are so attached to the links that no metal comes in contact with the pulleys, and no fastener is reqnired. Any one of the links may be taken out by removing one screw, and in the same



Whittle Link Grip Belt, showing method of detachment.

manner the belt may be shortened or lengthened to suit requirements. The Whittle belt is now being tested with satisfactory results on a Motosacoche by the Motosacoche Co. (Thomas Whittle and Sons, Ltd., Rose and Crown Street, Warrington.)

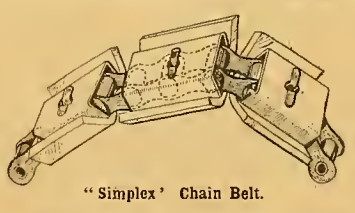
A firm which will cater largely in the future for motor cyclists' wants in the way of accessories is Phelon and Moore, Ltd. The P. and M. foot protectors are at present made only for P. and M. machines. They are attached to the footrests and two bolts of the crank



P. and M. Foot Protectors.

case, and are shaped to protect the feet only. In addition to the above, P. and M. air tube cases attached to the carrier by neat metal clips, valve protectors, and sparking plugs, are marketed. (Phelon and Moore, Ltd., 12, Mortimer Street, W.)

The Simplex chain belt consists of an ordinary cycle chain, on which are mounted hollow steel V pieces at intervals. These V pieces are surrounded by leather riveted to the links of the chain and to the V pieces by



"Simplex" Chain Belt.

bifurcated copper rivets. The combination of the chain with the leather-covered V pieces provides a flexible chain belt. When the leather covering is worn through, it should be an easy matter to replace the sections. (Norton Mfg. Co., Ltd., Deritend Bridge, Floodgate Street, Birmingham.)

Accessories and Equipment.

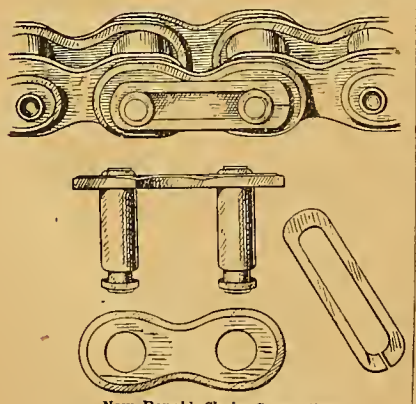
The Novdel Co. market an extremely neat combined carbide and match carrier. This consists of a metal case about the same diameter as a tyre inflator. Owing to its convenient size it is easily carried in two ordinary spring inflator clips. The interior is provided with a coil spring to keep the carbide from rattling about. The caps have self-locking bayonet joints,

Novdel Spare Carbide Carrier.

and the insides of the caps are provided with substantial rubber washers which prevent the damp attacking either the carbide or the matches, which, of course, are carried in separate compartments. Each carrier holds sufficient spare carbide to fill an ordinary sized motor cycle lamp. (The Novdel Co., Ltd., 92, Bexley Road, Northumberland Heath, Belvedere. Kent.)

The N.A.B. spring seat-pillar has been on the market for a number of years, and is popular among motor cyclists and pedal cyclists. It was one of the first spring seat-pillars to be introduced, and, owing to its special construction with rows of balls to prevent friction between the sliding and fixed portions of the pillar, it is not only easy in its action, but practically unwearable. The makers are keeping well up to the times, as they now construct a horizontal tube to carry the seat-pillar to fit machines like the N.S.U., and others, where a horizontal saddle stem is used. An angle clip is also provided for fitting on to the side of a horizontal seat tube, so that the saddle is brought close to the frame. (Reliance Works Co., Tram Terminus, Floating Bridge, Southampton.)

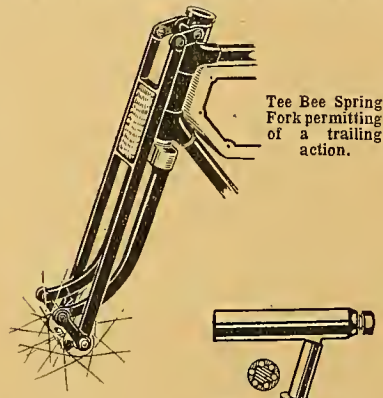
Motor cyclists who have been troubled in the past with chain pins coming out through the nut working loose will be interested in the latest novelty in connection with Renold motor cycle chains. This is called the spring clip joint. Two of the rivets and one side plate are rigidly connected together and are passed through the holes in the rollers so connecting



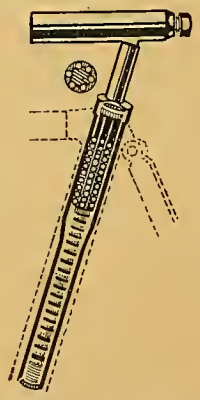
New Renold Chain Connection.

up the chain. The other side plate is then fitted on, and in the recess of the rivets a spring clip is placed locking the ordinary side plate in position. Not only is this a safer method of connection than the bolt and nut, but it is also a very much easier matter to connect and disconnect a chain. In passing, it must be admitted that chain transmission is gaining ground. (Hans Renold, Ltd., Brook Street, Manchester.)

The Tee Bee specialities for motor cyclists are so numerous that it is impossible to deal with them all in this issue. The firm has two excellent springing devices. One is a spring fork on an entirely new principle which allows the wheel to swing



Tee Bee Spring Fork permitting of a trailing action.



N.A.B. Spring Seat Pillar, largely used on motor cycles.

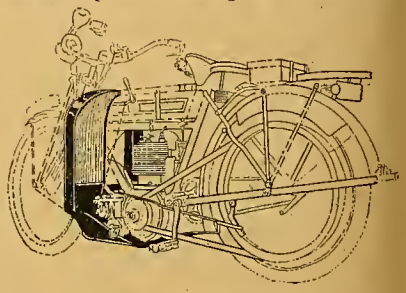
backwards and upwards. The usual practice has been to swing the wheel in front of the fork, but Templeton Bros. place the centre of the wheel behind the fork ends, allowing the wheel to trail instead of being pushed forward. It is worthy of note that the spring saddle attachment is so made that the rider's position is not raised. For high-framed machines a special pattern is made, bringing the saddle more over the back wheel. (Templeton Bros., 535, Sauchiehall Street, Glasgow.)

Practically since the advent of the motor cycle in this country the name of the Watawata belt has been before the public. The canvas and rubber belt is a keen competitor with belts made of leather, but for those who prefer a very flexible belt, and do not mind a little increased trouble of cleaning and dressing, there is no question that the Watawata saves power and is an efficient means of transmission. It is made up of two or more strips of leather with specially shaped leather blocks at intervals. By this construction, when the belt passes round the small pulley the different parts adjust themselves freely to the small diameter of the pulley, eliminating the destructive and power-absorbing strains which are present in V belts of solid construction. The annexed sketch shows how the underpart of the

The Watawata Leather Belt.

belt accommodates itself to the small diameter of a pulley by buckling or bending up into the spaces provided between the aforementioned blocks of leather by which the strips are kept apart. Large diameter copper washers are employed on the top ply, which prevent the plies doubling up, as they often do when small washers are used. (O. and W. Ormerod, Railway Leather Works, Rochdale.)

The Miller shields for the complete protection of rider and machine are much sought after by those motor cyclists who make a point of using their machines



Miller's Mud Shield.

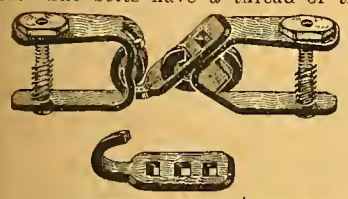
all the year round. The shield completely protects the rider's legs, thighs, and feet from the cold wind and the mud and wet which are thrown from the front wheel. It does this without screening the cylinder from the cold draught of air which is essential to the perfect running of the engine. In addition to protecting the rider, it will be noticed that the screen passes underneath the engine and connects up at the rear with a special back wheel guard which protects belt, belt rim, and rider from mud and wet thrown from the back wheel. Another small accessory made by the same firm is a spare valve carrier. This is made of hard wood, and takes one valve complete with spring. (John A. Miller, Bracken Road, Brighouse, Leeds.

Phrax motor cycle belting is made with a layer of leather at top and bottom and a central layer of rubber strengthened with canvas. It is claimed by the makers that when the belt passes round the small pulley the bottom layer of leather is compressed into the

middle layer of rubber, swelling it sidewise, and securing a perfect grip of the pulley irrespective of the tightness of the belt. Phrax belting is made in all sizes from $\frac{3}{8}$in. to $1\frac{1}{2}$in.; also a lightweight section. (Phrax Belting Co., 87-88, Cheapside, Birmingham.

Accessories and Equipment.

The special features of the Vulcan belt fasteners are the method employed for preventing the ends of the belt pulling out, and the extension hook for taking up the stretch of the belt and for use with adjustable pulleys. Our illustration shows one of the Vulcan fasteners with extension hook in position. The bolts have a thread of the

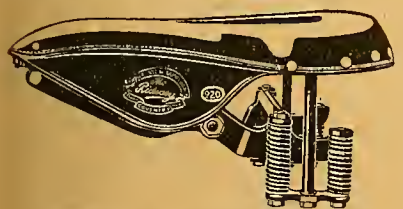


Vulcan Detachable and Adjustable Belt Fastener.

usual kind for engaging with the nut or button, but on the part which fits in the belt the thread is similar to that of a wood screw. The screws, therefore, easily pull themselves into the belt—a feature which will be appreciated by every practical motor cyclist. (Stanley T. Robson, 59, Hobmoor Road, Birmingham.)

During the winter and rainy months magneto troubles are frequently caused by wet attacking the vulnerable parts of the insulation and winding. Mr. Surridge has devised a neat and simple remedy for this in the form of a rubber case, which is both water and oil-proof. It is very tough, and will stand any amount of rough handling. Reference has been made to the Holdtite patches (see our issue of November 22nd, 1909), which vary in size, and are easily applied. The tube is first prepared with coarse glass paper, after which it is coated with a good thick layer of solution. The patch is then treated with a thin coating of solution, and after both have become tacky they are placed together, and the repair is done. These patches are supplied in boxes of twelve, varying in size. Mr. Surridge also makes a speciality of a red rubber air tube which has every appearance of being both strong and serviceable. (R. Surridge, 58, George Street, Camberwell, S.E.)

The construction of the latest Middlemore and Lamplugh motor cycle saddle is somewhat novel. Each side frame member has at the rear extremity tensional springs connected by a plate supporting a central rod which



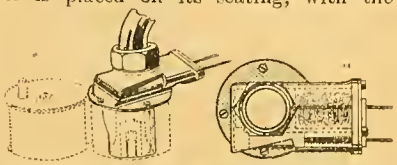
Middlemore and Lamplugh's Rideasy Saddle.

is connected to the saddle cantle. There is no spring in front, the elasticity of the tensional spring alone being depended upon to provide a comfortable seat. The top of the saddle is hogskin comfortably padded on the lines of the well-known "Rideasy" made by the same firm. The quality of the work is in the first rank. (Middlemore and Lamplugh Ltd., Coventry.)

As a means of comfort most motor bicyclists have probably scoffed at the possibility of a wind screen as being helpful towards this end. However, Mr. J. A. Taylor is confident of its success, and has produced a serviceable wind screen for the use of motor bicyclists and tricarists. For bicyclists it is adapted for any handle-bar width, and being made of celluloid is extremely light, weighing only just over 3 lbs. It may also be fitted to the passenger seat of a tricar or sidecar. In the event of the wind proving too strong for its use (which is highly improbable, as it is very little wider than the rider's shoulders) it is easily removable. These screens are made with polished walnut frames, plated fittings, and brass bound frames up to two feet square. (J. A. Taylor's Cycle and Motor Works, Lower Edmonton, N.)

The J.A.P. carburetter, which is very popular among motor cyclists, especially users of Bat machines, displays great ingenuity. The jet consists of a plate or disc in which slots are cut radially in pairs, and the depth of these slots is varied in different size jets. The jet plate fits over a disc, the lower portion of which is surrounded by gauze. The petrol enters from the bottom and issues through eight small holes in shallow recesses which register with the cuts on the jet disc. The main air enters from an elbow at the bottom of the vaporising chamber which is controlled by a shutter, which will partially close the air holes. One of these can be covered or uncovered at will by a brass slide controlled by a milled screw outside the carburetter, so that the mixture may be altered slightly according to the atmospheric conditions and to facilitate starting. Immediately over the jet there is fixed a thick plate containing two sets of holes, the outer set communicating directly with the outer air and the inner set with the mixture from the jet, the two leading into a single set of holes communicating with throttle. Normally, the holes communicating with the air are covered up by steel balls, but as the throttle is opened further and the suction increases, these balls lift from their seatings and the mixture is proportionately weakened. Another well-known J.A.P. speciality is the J.A.P. sparking plug, which has been long on the market, and has times without number proved its excellence. (J. A Prestwich and Co., Ltd., 1, Lansdowne Road, Tottenham, N.)

We repeatedly receive enquiries from owners of old pattern machines with Longuemare carburetters with regard to the fitting of handle-bar control. The Wright adapter is specially made for this purpose. All that is necessary is to remove the usual throttle and air adapter, and replace it with a Wright adapter which is illustrated in the accompanying sketch. Mills and Co. (Kettering), Ltd., who make this attachment, also market a device for valve grinding which enables the valve to be ground to a state approaching finish, before it is placed on its seating, with the

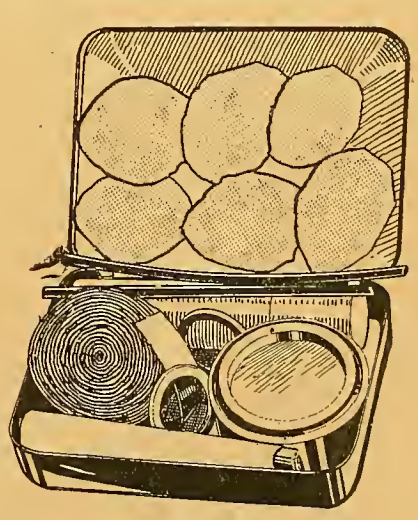


Wright attachment for Longuemare carburetters.

result that the valve seating is not worn away by repeated grinding. The device is of a suitable shape and size for carrying in a tool bag. (E. Mills and Co. (Kettering), Ltd., Crown Works, Kettering.)

The N.S.U. belt fasteners are made in various sizes from $\frac{3}{4}$in. to $1\frac{1}{4}$in. With the $1\frac{1}{8}$in. size each link is held by two screws. In addition to the above, they have a special belt fastener for grooved belts. The N.S.U. engine shaft two-speed gear is, as most motor cyclists are aware, capable of being fitted to different makes of machines. Its chief advantages are excellent quality and lightness. There are few gears more satisfactory. (The N.S.U. Motor Co., Great Portland Street, W.)

Every motor cyclist who starts out on a lengthy ride without a perfect tyre repair outfit is tempting the fates. The Turco motor cycle outfit contains, besides a plentiful supply of Turco, lightning patches, canvas back attaching sheet, rubber solution, canvas, French chalk, glass paper, insulating tape, valve rubber, and sparking plug washers. The price is distinctly moderate for such a complete outfit. The firm also supply carbide. Made and sold under the same brand of

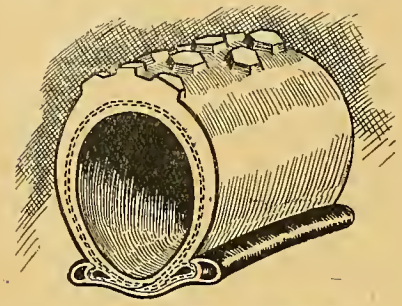


The "Turco" Tyre Repair Outfit.

Turco, it is packed in handy oval flasks, which enable a one pound tin to be conveniently carried in the pocket if there is no room for it in the tool-bag or luggage carrier. (Union Rubber and Chemical Co., Ltd., Shaw Street, Ashton New Road, Manchester.)

Tyres

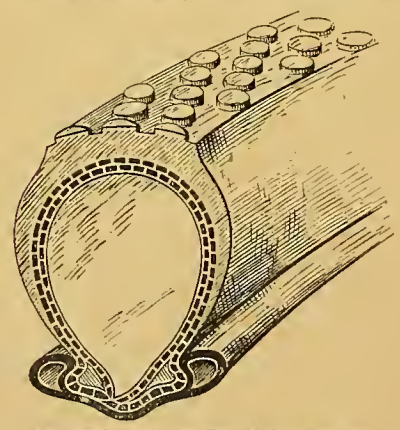
Melksham is on the borders of Salisbury Plain, and in close proximity to Stonehenge. This will explain the trademark of the Avon Indiarubber Co., Ltd., which is a reproduction of three of the mighty monoliths which attract so many visitors to that part of the country. Being large makers of indiarubber goods they have not overlooked the possibilities of the motor cycle business, and market Avon tyres in several different patterns. First



The Avon Tyre, with hexagon shaped non-skidding rubber studs.

there is the Hexagon pattern rubber-studded tyre in two qualities, then the round rubber-studded in two qualities, the Seven Lines or ribbed in three qualities, and a steel-studded in one quality. Special attention is paid to the quality of the rubber studs to withstand the severe strain upon them. In constructing the steel-studded cover the washers top and bottom make a very firm grip of the cover, and the studs are not liable to come out. A speciality is made of the Seven Lines or ribbed pattern type, and the steel-studded tyre for motor cycle passenger work. (Avon Indiarubber Co., Ltd., Melksham, Wilts.)

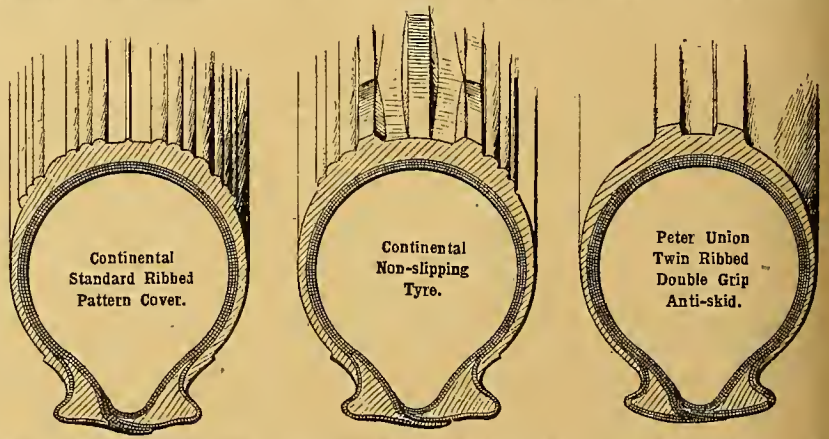
The firm of W. and A. Bates, Ltd., is making a speciality of motor cycle tyres, turning out large quantities which are giving most satisfactory results. These tyres are made in rubber-studded and ribbed patterns, both in three weights—standard, heavy, and extra heavy—according to the weight and power of the machine. The extra heavy is intended for



Bates Rubber-studded Tyre with square tread and beaded edges.

passenger work. When the casing of the tyre is in good condition it can often be made as good as new by re-treading. In such cases Bates's non-slipping rubber-studded treads will be found to give excellent results. They are exactly the same in pattern as the illustration of the rubber-studded complete tyre on this page. (W. and A. Bates, St. Mary's Mills, Leicester.)

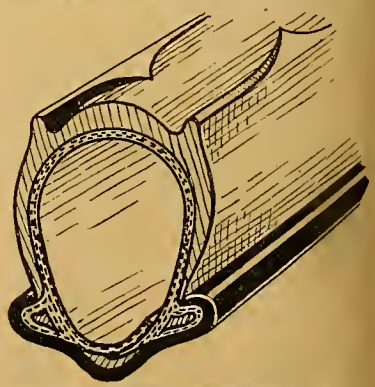
The Continental motor cycle tyre is specially designed for the heavy work to which it has to be put. The "Modèle de Course" pattern is a cover with a splendidly substantial tread possessing just over a centimetre of solid rubber and canvas at the thickest portion of the tread. It is specially recommended fo nowerful


Continental Standard Ribbed Pattern Cover.
Continental Non-slipping Tyre.
Peter Union Twin Ribbed Double Grip Anti-skid.

multi-cylinder machines or motor bicycles with sidecar attachments. The rubber non-skid tyre with oat pattern tread is a popular tyre, admitted to be most efficient against side-slip. It is made in two grades, the standard for machines up to 3 h.p., and the Autobi for heavier motor cycles and tricars. For the latter steel-studded tyres are also sold. The two lighter grades of covers may be had with either wired or beaded edges. The Continental butt-ended inner tube, one of the earliest and most successful on the market, has been further improved, in that the joint is now designed so that the minimum amount of friction exists, and a firm and safe joint is provided. (The Continental Tyre Co., Ltd., Clerkenwell Road, E.C.)

There is no doubt that the Peter Union tyre is a popular one among motor cyclists, and the fact that the company issue a special booklet describing their motor cycle tyres shows that they are really in earnest in catering for this important section of the motoring public. Several different types of covers are made. The first is the ordinary type, heavy pattern, all rubber, and with longitudinal grooves on the tread. The cover is a substantial one, and has four layers of canvas. The twin rib double grip cover is one of which the firm are making a speciality for this season. It is undoubtedly most effective against skidding, and is much faster than the steel-studded tyre. The twin rib double grip Peter Union tyre was used by M. Geiger on the twin V.S. when he broke the End-to-end sidecar record, with great success. The sectional illustration below shows that the tread has a good thickness of rubber, and is therefore likely to outlast other covers unprovided with such a liberal coating of resilient material between the air tube and the road. The Peter Union steel non-skid has hardened steel studs, which cannot come out with fair usage, and wear gradually till they are flush with the tread. The Peter Union puncture-proof band is an efficient safeguard against puncture, and the makers inform us it acts as an insulator, and prevents heating of the inner tube, and is largely used. (The Peter Union Tyre Co., 190, Gt. Portland Street, W.)

The Three Spires tyre differs from many others of the non-skid type by reason that it is a non-skid as long as the tread lasts. The anti-slipping portion of the tread is at the sides, and not in the centre. In consequence, the tread can be made perfectly smooth, which makes the tyre much faster. It is manufactured in beaded edge only, and in the following

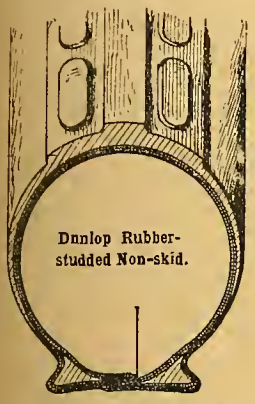


The "Three Spires" Non-slipping Cover

sizes: 24in. by 1¾in., 26in. by 1¾in., 2in., 2¼in., and 2½in. (The Coventry Rubber Co., Coventry.)

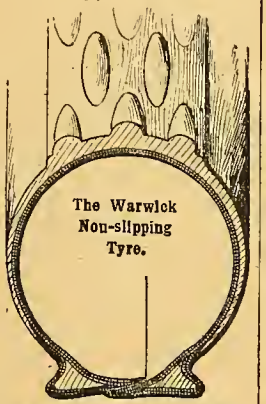
Tyres.

There is no more famous tyre on the market than the British-made Dunlop, which has proved its excellence on motor cycles for many years. On first examining a section of the cover, one is disposed to think that the tread is rather thin, but, owing to the excellent quality of the material used in building up the tyre, it is really durable, and possesses that resiliency which a thicker tyre cannot well have. The latest pattern is provided with a tread of lozenge-shaped studs running down either side of a central rib. As a non-skid, the tyre is wonderfully efficient, and in actual use on the road it has times without number proved itself both durable and effective. In addition to the rubber-studded non-skid tyre just described, the company make a grooved tyre, on the tread of which seven longitudinal grooves run. Somewhat of a novelty is the Dunlop butt-ended inner tube, which is clearly shown in the appended illustration. It will be seen that the joints are situated near the valve. The solid ends of the tube project some distance into the outer portion before they reach the butt, and to the further side is attached a long flap provided with eyelets, which is slipped over the valve, thus preventing any possibility of creeping. From what we know of the Dunlop material, this tube is likely to become extremely popular. (The Dunlop Tyre Co., Ltd., Aston, Birmingham.



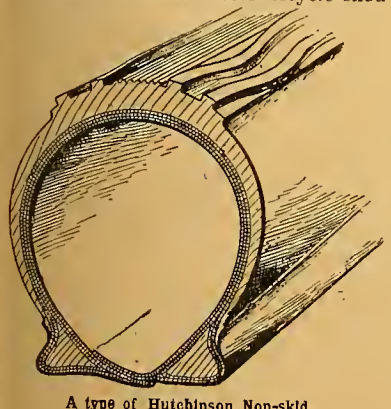
Dunlop Rubber-studded Non-skid.

Ribbed pattern Dunlop Tread.



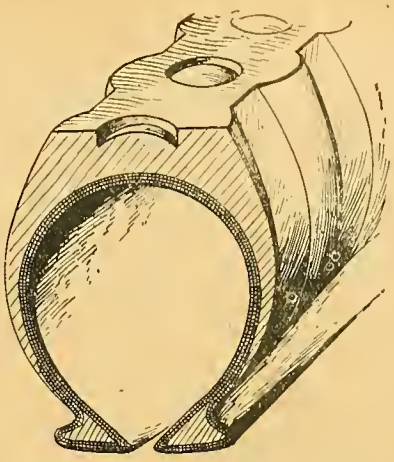
The Warwick Non-slipping Tyre.

The Hutchinson tyre made its *début* before the British public at the end of last year in a remarkable manner. With his Matchless motor bicycle shod with Hutchinson reinforced motor cycle tyres, afterwards aptly christened the Brooklands type, H. V. Colver secured the 50 miles, 100 miles, and two hours' world's records on Brooklands track. Now, as all the world knows, the surface of this famous track is particularly hard on tyres, and this, coupled with the fact that exceedingly high speeds were maintained, speaks wonders for the durability of the tyres owing to the enormous strains they had to withstand. It is also interesting to note that the extra reinforced Brooklands type Hutchinson tyre is guaranteed for twelve months. This type of cover is also made in a lighter form. A cover which Messrs. Hutchinson consider will meet with a ready demand is the extra reinforced non-skid, a square treaded tyre with four wavy ribs on either side of the tread, and with the word Hutchinson moulded in between. These ribs the company claim will ensure a good grip of the road, and will be effective against side-slip. This cover has a very thick rubber tread. (The Hutchinson Tyre, 70, Basinghall Street, E.C.)



A type of Hutchinson Non-skid.

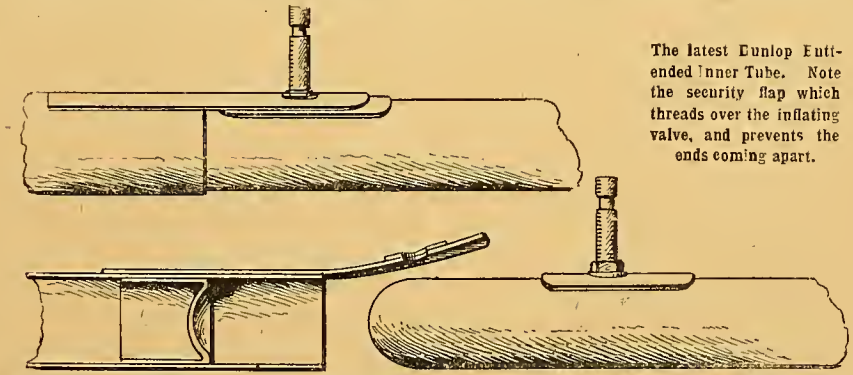
Motor cyclists must be well acquainted with the principles of the Kempshall tyre, which has saved many an intrepid rider from side-slip and skid. In addition to the actual cover, the Kempshall Co. is now introducing a "Fearnought," which acts as a reinforced tube. This inside tubing may be inserted round the tube under any cover, however old, and lengthens the life of the tube to a considerable extent. Ribbed and anti-skid covers are another feature of this firm. The Kempshall emergency patch, consisting of several plies of rubber and canvas solutioned together, backed by black rubber sheeting and faced with red rubber sheeting, the whole being shaped so as to fit inside the cover, is an excellent adjunct to the motor cyclist's kit. Rows of small but thick pins, their heads being embedded in the canvas and their points sticking out, enter the fabric of the outer cover and keep the patch in position without the extraneous aid of solution or tape. This is a great advantage when one is in a hurry, as it is always a most difficult matter to get patches to stick to the fabric of a cover. (Kempshall Tyre Co., 1, Trafalgar Buildings, W.C.)



Kempshall Motor Cycle Non-skid Cover.

The Kempshall Emergency Patch for repairing a gash in the outer cover.

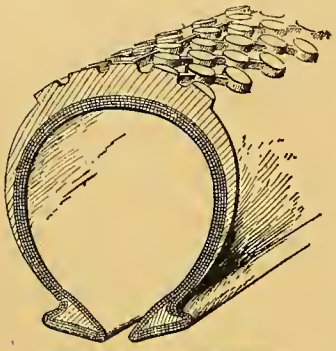
One of the earliest firms to exploit the rubber-studded tyre which is now so popular was the B. F. Goodrich Co. The construction of the Goodrich tyres is without doubt interesting. The whole of the outer surface of the tread is moulded in one piece, and is composed of close-grained, soft rubber, which does not cut easily. It will be found that, except with a very sharp instrument, the rubber does not lend itself easily to be penetrated. A blunt pin pushed into one of the rubber studs will apparently enter a long way, and



The latest Dunlop Butt-ended Inner Tube. Note the security flap which threads over the inflating valve, and prevents the ends coming apart.

Tyres.

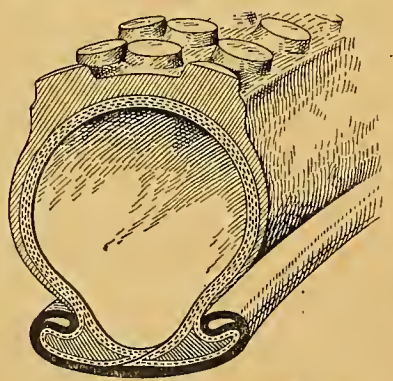
perhaps bulge out the other side, but it does not cut the rubber at all; consequently a Goodrich tyre is not easily punctured. For 1910, the cover has been considerably strengthened. It will be noticed that in the Goodrich tyres the studs are placed close together, and the company have found from experience that the tyre does not hold the mud so readily as other makes of studded tyre, as it is claimed that the part of the tyre actually in contact with the ground has the studs contracted at the moment of contact, and that as soon as the weight is released



Goodrich Rubber-studded Non-slipping Tread.

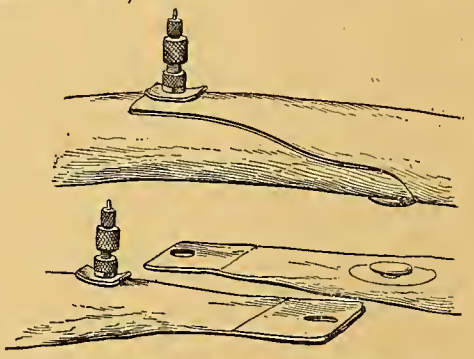
they expand and throw the mud clear. Goodrich tubes, we are told, consist of ninety-four per cent. of the best Para rubber. The B. F. Goodrich Co. have turned their attention to an excellently made butt-ended tube. On the underside of the tube there is a rubber button, which fits into a slot cut on the other end of the tube, while on the other side there is an eyelet which slips over the valve, thus making the joint secure. (The B. F. Goodrich Co., 7, Snow Hill, E.C.)

The Hanover Rubber Co. are best known to motor cyclists as makers of the Shamrock-Excelsior rubber-studded tyre, which is made in the heavy type only, and, being substantially constructed, the reason for its popularity is not far to seek. Another type is the corrugated pattern, which is likewise substantial, and differs only from the other in the surface of the tread. For the driving wheel of motor bicycles used in conjunction with a sidecar or



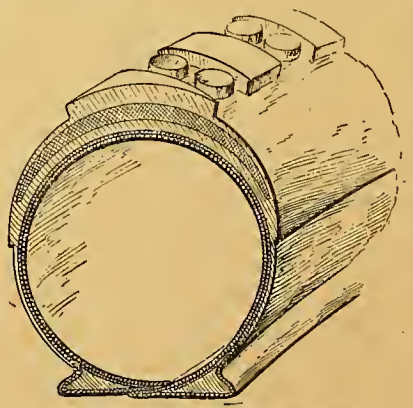
Shamrock-Excelsior Rubber-studded Cover.

for tricars, the Shamrock-Excelsior steel-studded tyre is particularly suitable. There are altogether three rows of studs, the two outer ones being close to the edge, with their surfaces roughened, while the inner row is of small studs placed farther apart. The studs themselves are fastened to the rubber tread, and, to make quite sure that they do not chafe the tube, a lining of felt encircles the interior of the tyre. The rubber-studded and corrugated tread tyres are made in suitable sizes for lightweights. (The Hanover Rubber Co., 29-31, Old Street, E.C.)



The new Goodrich Butt-ended Air Tube inflated. In the lower drawing it is shown deflated ready for connecting.

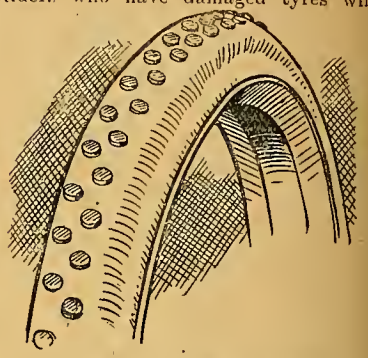
Probably no motor cycle tyres ever sprang more quickly into popular favour than the Rom tyre, the most popular model of which is the "combination" pattern. The tread of this consists of rectangular bars moulded diagonally on to the exterior of the



R.O.M. Combination Steel Studs and Rubber Bars.

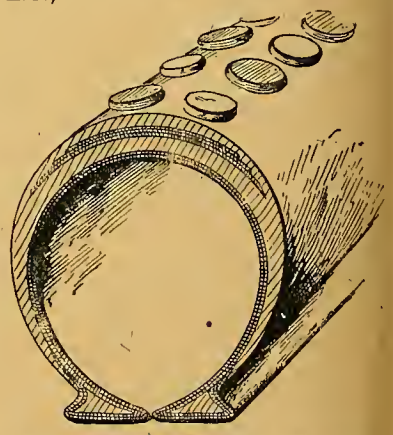
cover, between which are steel studs, the object of these being to preserve the resiliency of the tyre and yet to provide a really efficient non-skid. It is not generally known that the Rom Tyre Co. make an excellent all-rubber-studded tyre which, we understand, is giving great satisfaction, while the company also make a speciality of a well-made butt-ended tube. (The Rom Tyre Co., 31, Brooke Street, Holborn, E.C.)

A strong and serviceable looking cover is a leading feature of the Bancroftian Co.'s output. The Gothania cover, as it is styled, is provided with a double row of steel studs, and is made of the best rubber. Riders who have damaged tyres will



A steel-studded cover—the Gothania.

do well to sample Mirabilis tyre stopping, which is claimed to be an efficacious remedy for bad cuts in outer covers. Solution having been inserted in the cut, the Mirabilis stopping is added when the former is nearly dry, and will vulcanise the affected part in about five hours. It is sold in small tins which do not take up much room. (The Bancroftian Co., 49, Bishopsgate Street Within, E.C.)



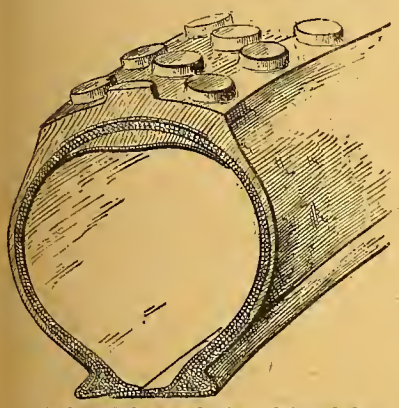
Liversidge alternate Rubber and Steel-studded Non-skid.

In the Liversidge non-skid motor cycle tyre there is a double row of studs. These are alternately rubber and metal, this being, in the opinion of the makers, the best preventive against side-slipping and skidding. The firm is pinning its faith to this form of tyre alone for motor cycles. It may be noted that this tyre was once known as the Scott, but its name has now been changed. (Liversidge and Sons, 196, Old Street, E.C.).

Probably no tyre has a better record behind it for durability than the Palmer, and it speaks well for the enterprise of the firm that they issue a special catalogue of motor cycle tyres, which is most interesting reading. Palmer tyres are made in two grades—one with an extra strong fabric and the other with patent "airless cord." This famous cord tyre has been, as all the world knows, an astounding success. The Palmer fabric consists of parallel threads of great strength, each of which is thoroughly insulated with

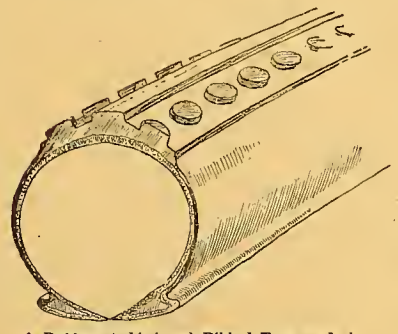
Tyres.

rubber, thus rendering it impervious to moisture. People often wonder why the cord tyre is known as the "airless" cord tyre, so it will be interesting to explain the reason for the title. In the vulcanising processes through which the tyre has to go the air expands at the high temperatures and prevents the rubber from making contact with the fibres of the threads. The cord consists of a number of unit threads (of about the same size as sewing cotton) which pass through very long tubes of small bore into a high pressure cylinder containing indiarubber solution, maintained at a constant pressure. As the threads slowly enter the tubes they meet with a gradually increasing pressure of rubber solution, which forces the air backwards from between the fibres of the threads, with the result that the space it filled is occupied by rubber solution. The threads then go through



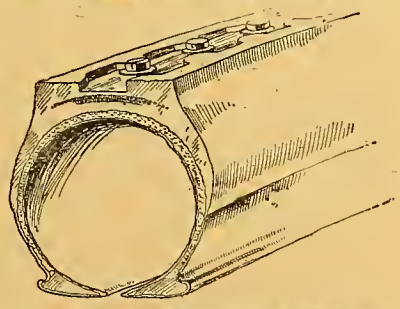
The latest Palmer production. This embodies the patent cord casing described in the accompanying letterpress.

various building up processes, which result in every thread being absolutely insulated from the other by rubber, and a cord is made composed entirely of rubber and threads from which the air has been excluded. After the cord is laid a cover of rubber is applied and the whole is moulded and vulcanised, while the inside which comes in contact with the tube is coated with an anti-friction preparation. A thin red strip is inserted in the thread, so that when the latter becomes worn down the strip shows and indicates that retreading is necessary. From the foregoing it may be gathered how carefully Palmer tyres are constructed. The best known Palmer tyre is the three-ribbed pattern, which is most efficient against sideslip, has a thick tread, and is practically invulnerable against small nails and thorns. The latest type of Palmer is the rubber-studded cord tyre, which possesses the great durability and resiliency which have made the cord tyre famous, and at the same time has excellent anti-skid qualities which cannot fail to render it popular. It is interesting to mention to which rims Palmer tyres can be fitted. A 2in. rim will take 26in. and 28in. × 2in., and 26in. and 28in. × 2¼in. (specially made). The 26in. and 28in. × 2¼in. and the 26in. and 28in. × 2½in. Palmer tyres fit the 2¼in. Palmer rim only. The firm also supply a 650 × 65 mm. motor cycle tyre to fit rims not of their make. The Palmer Tyre, Ltd., have a splendid record of the excellent performances of their tyres and numberless flattering testimonials. (The Palmer Tyre, Ltd., 121, Shaftesbury Avenue, W.C.)



A Rubber-studded and Ribbed Tyre made by the Midland Tyre and Rubber Co.

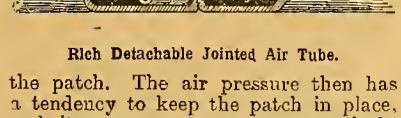
The Midland tyres are made in two patterns, as shown in the accompanying illustrations. One is rubber-studded with a solid rib down the centre, a single row of studs being placed on both sides of the rib. The other is a substantially constructed tyre with a thick square rubber tread hollowed in the centre, where steel studs are fitted. The thickness of the tread exceeds half



A Midland pattern of cover. Steel studs and square rubber tread.

an inch, and makes this tyre particularly suitable for heavyweight machines or passenger service. (The Midland Tyre and Rubber Co., Ryland Street, Birmingham.)

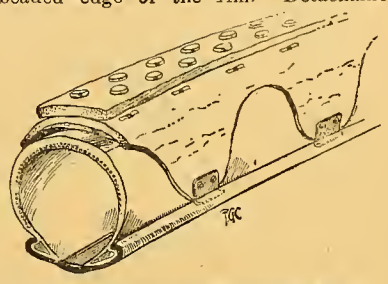
The Rich detachable air tube illustrated on this page has been on the market over five years, and has proved its reliability. It has a free circulation of air right round the air tube, and one of the advantages in connection with this is that patches may be applied on the inside by turning the tube inside out previous to applying



Rich Detachable Jointed Air Tube.

the patch. The air pressure then has a tendency to keep the patch in place, and it cannot move or cause a leakage. It is important when buying these tubes to see that the proper lubricant is supplied for smearing on the joint, as the tubes are often condemned through improper use. (The Rich Patent Detachable Air Tube Co., Crawley, Sussex.)

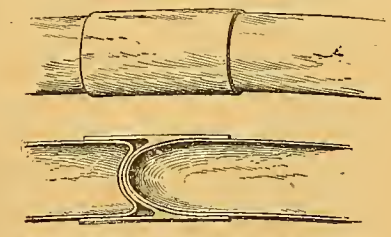
In addition to the Lomax tyre, which is made with a rubber-studded tread, and in four patterns suitable for single and passenger work, this firm markets a detachable non-skid, which is easily fitted to any worn motor cycle cover. Three rows of steel studs are fastened to a chrome leather band provided with metal hooks fastened along the sides. These hooks engage in the beaded edge of the rim. Detachable



The Lomax Detachable Non-skidding Band.

non-skids are very convenient for those riders who prefer a plain tread for summer use, as they can be removed during the summer months, when a non-skid tyre is not so necessary. (The Lomax Tyre Co., Ltd., Resilient Works, Great Charles Street, Birmingham.)

"Sir Bibendum" seems to ride merrily on through all vicissitudes, fair weather and foul, and never to grow thin through his exertions. It would indeed have to be a sharp and well tempered nail to pierce this hardy sportsman's heart. Michelin non-skid motor cycle tyres differ in no respect, except in size, from the all-conquering car tyres, which have done such good service both on the road and track. The exceptional efficiency of Michelin covers is due to the fact that the tread is an integral part of the cover and not an attachment. A band of stout and trustworthy leather protects the cover, and the walls of rubber are not

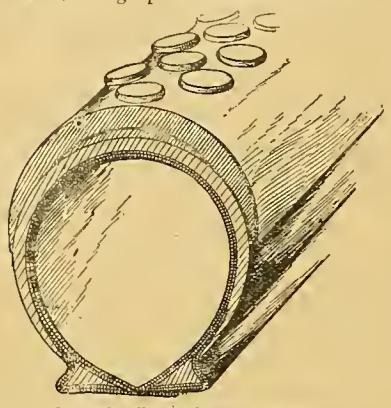


Section of the Michelin Butt-ended Air Tube.

entirely covered by this band. However, it extends far enough to ensure their being protected from cuts. Sufficient ventilation of both cover and tube is thus assured, while at the same time the tyre is in no way deprived of its resiliency. Michelin tyres may be had either wired-on or with beaded edges. One of the chief nuisances when experiencing tyre troubles is the necessity of removing the wheel if a tube must be replaced. One of the

Tyres.

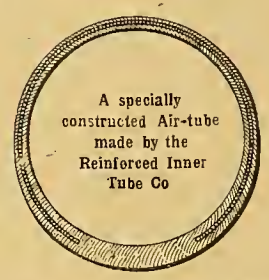
Michelin specialities is a butt-ended tube which can be removed without detaching the wheel. This is claimed to be a thoroughly reliable device, and as long as the butt-ends are pushed properly home there can be no fear of their coming apart when the tube is in-



The Michelin Steel-studded Non-skid.

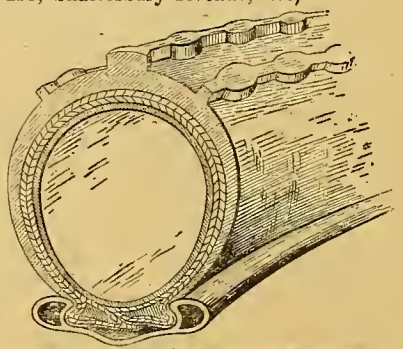
flated. Very satisfactory results may be obtained by using this tube, and "Sir Bibendum" adds yet another to his many triumphs by the introduction of this device. (Michelin Tyre Co., Sussex Place, Sonth Kensington, S.W.)

The Challenge Reinforced Inner Tube for motor cycle tyres is an invention which deservedly claims the attention of our readers. All motor cyclists are aware that if the cover of a motor cycle tyre be severely gashed the next thing that happens is that the tube forces its way through the fabric, and then bursts. Now if the tube is made especially strong such a contingency will not occur, and the motor cyclist would be enabled to continue his journey until such a time as a new cover could be purchased. In outward appearance the tube resembles any other, but in actual construction it is quite different, as it is reinforced by two layers of specially woven and almost untearable fabric embedded in the rubber. This interlining extends all the way round the tube except at the base (adjoining the rim), where there is a narrow strip of pure rubber of double thickness, protected by the rim, which serves to supply the necessary elasticity. According to tests



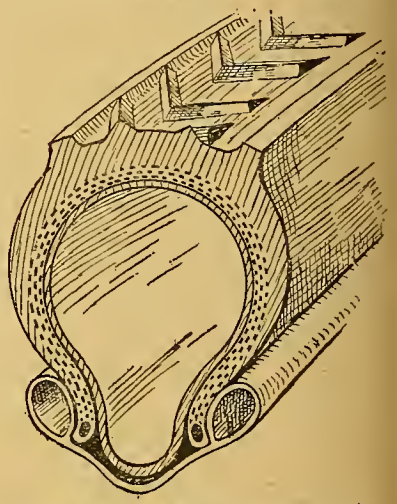
A specially constructed Air-tube made by the Reinforced Inner Tube Co

carried out by the Royal Automobile Club, the resiliency of the Challenge Reinforced Inner Tube is precisely the same as that of a standard tube. The Challenge tube has been most successful on motor cars, and this added to the fact that further improvements have been made should render it quite satisfactory for motor cycle work. It adds but little to the weight, not much to the cost, and allows covers to be used which under other circumstances would be fit only for the scrap-heap. (The Reinforced Inner Tube Co., Ltd., 218, Shaftesbury Avenue, W.)



Clincher Dreadnought Cover with Rubber Bars.

Very few important road events occur without a good proportion of the machines used being fitted with Clincher tyres. This firm was one of the first to introduce the rubber-studded non-skid tyre which is now so popular. In addition to the ordinary tyre with separate studs the "Dreadnought" is made with a unique non-slipping tread, and is intended particularly for heavy motor bicycles or passenger work. The North British Rubber Co. is one of the oldest firms in the tyre trade, and there is no necessity for us to enlarge upon the qualities of its workmanship An illustration of the rubber-studded non-slipping pattern will be found on this page, and other Clincher patterns are the "A Won" and the "A Won Dreadnought" with a ribbed tread. (North British Rubber Co., Ltd., Castle Mills, Edinburgh.)

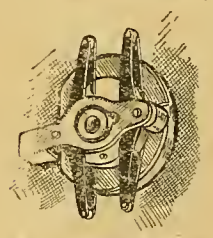


The Moseley Non-slipping Tyre with wired edges. The same tread is also made with beaded edges.

Moseley's non-slipping motor cycle tyre is made with both wired and beaded edges. Our illustration is that of the wired-edge pattern. The firm makes the motor cycle covers of the same quality of fabric and rubber as is used for its motor car tyres. We had one of these covers in use on a tri-car last year, and found it gave every satisfaction. Moseley and Sons regard the wired edge cover as safer than the beaded edge. (David Moseley and Sons, Chapel Field Works, Ardwick, Manchester.)

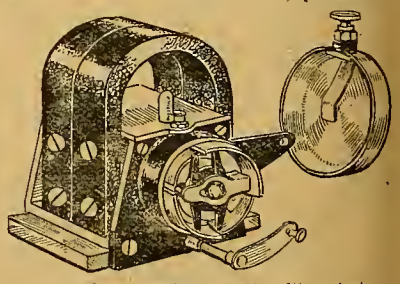
Electrical Appliances

Motor cyclists who are unacquainted with the U.H. magneto will do well to make an early acquaintance with this useful accessory. Every U.H. magneto is tested to run up to 4,000 r.p.m. without missing a single spark, and the fact that 40,000 miles of use have caused no appreciable wear on the machine shows that it is thoroughly reliable. The U.H. magneto is of simple construction, and there are few parts likely to give trouble. They are made for motor cycles of every h.p., and are remarkably light and compact. The contact breaker is on quite different lines from the usual type employed on magnetos. One of the platinum points is mounted on a spring, at the end of which is a fibre block, while the other platinum point is attached to a plate immediately below it. This spring normally keeps the two points in contact but the fibre block in process of rotation strikes a cam forming the arc of a circle fixed to the brass segment forming part of the timing lever. During the contact with the steel cam the points separate. The armature runs on caged ball bearings. (G. A. Claus, 83, Mortimer Street, W.)



The U.H Magneto Contact Breaker.

Numerous interesting accessories are handled by the City Ignition Co., who, by the way, make a speciality of repairing magnetos, coils, and accumulators—a fact which may interest not a few of our readers who daily ask for

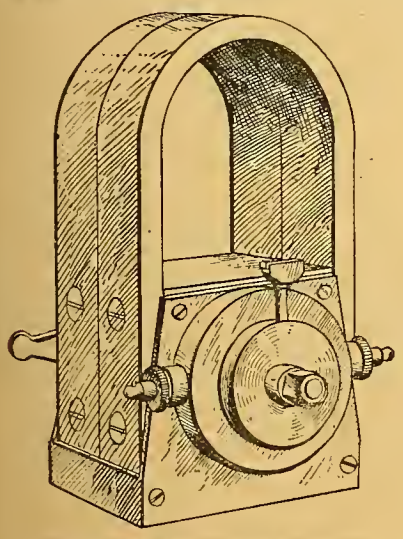


U.H Single-cylinder Magneto with contact breaker cover removed.

Electrical Appliances.

a suitable place whither coils may be sent to be overhauled. The firm first came before the notice of motor cyclists when it introduced the Voltoo two-volt coil, which is manufactured at the company's premises, but it moves with the times, and now makes a speciality of a high-tension motor cycle magneto, which is sold at an extremely moderate price, and is guaranteed against reasonable wear and tear for twelve months. The magneto follows standard lines. The armature carries both the high and low-tension windings, which are carefully insulated from one another, while the condenser is fitted on an insulated metal case situate between the magnets, directly above the armature, thus completely enclosing the latter and excluding oil and dirt. The armature spindle runs on ball bearings. (The City Ignition Co., 14, Spencer Street, Goswell Road, E.C.)

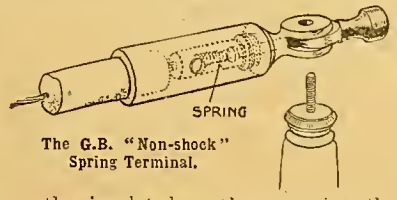
The Bosch Co. was the first firm to put on the market a self-contained magneto on which both high and low-tension windings were carried on the armature, thus doing away with the necessity of a separate coil. The



Latest pattern Bosch Magneto for twin-cylindered V type engines.

same principle carried out in the earlier models is still maintained, but many improvements in detail have been added. Firstly, the old and at times troublesome fibre ring has been eliminated, and now, by insulating the rocker carrying the platinum point, and instead of the fibre ring substituting steel segments, the contact-breaker has been simplified and improved. When the magneto was first adapted to V type twin-cylinder engines, a difficulty presented itself which to many electrical experts seemed to be insuperable. Owing to the angle at which the cylinders were set, one spark occurred near the maximum position of the armature, namely, where the greatest number of lines of force were cut, and the other some distance away, which resulted in a strong spark occurring in one cylinder and a much weaker one or none at all in the other. This resulted more often than not in only one cylinder firing when the machine was first started, while the other would not chime in until a good speed had been attained. Next, curiously enough, the intensity of the sparks would change over, and as the speed increased the spark which had been strong would weaken and that which had been weak would increase in strength. The whole thing was merely a compromise, but, thanks to Bosch workmanship, it did wonderfully well. (The whole idea is clearly explained in "Motor Cycles and How to Manage Them.") For some time a staggered armature has been employed, which allows the sparks to be equalised in intensity. The latest and final improvement is to support both sides of the armature spindle on ball bearings, and thus to minimise friction to the greatest possible extent. The particular type of magneto with which we have chiefly dealt is the D.A.V. with ball bearings, but the same principle is maintained in all the other models, which are made to suit all types of motor cycle engines. To work in conjunction with the Bosch magneto special sparking plugs are made, with steatite insulators, and with four or two electrodes. The latter are specially suited to engines subject to excessive lubrication. (The Bosch Magneto Co., Ltd., 23, Store Street, W.C.)

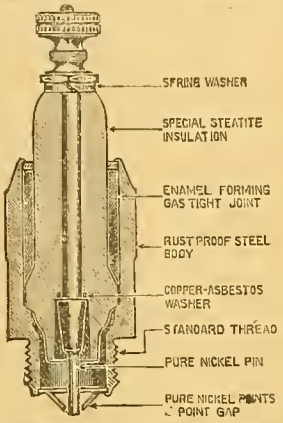
The G.B. Non-shock terminal provides for instant attachment or detachment from the sparking plug without shock to the rider whilst the engine is running. To detach the terminal all that is necessary is to place the thumb and one finger of the left hand



The G.B. "Non-shock" Spring Terminal.

on the insulated portion covering the cable and the index finger of the right hand on the small insulated knob. Press the two parts together and the terminal can be lifted off the screw thread of the sparking plug. It is impossible for the terminal to be shaken off the plug by vibration, and it dispenses entirely with any nut or other fastening. (The County Chemical Co, Chemico Works, Bradford Street, Birmingham.)

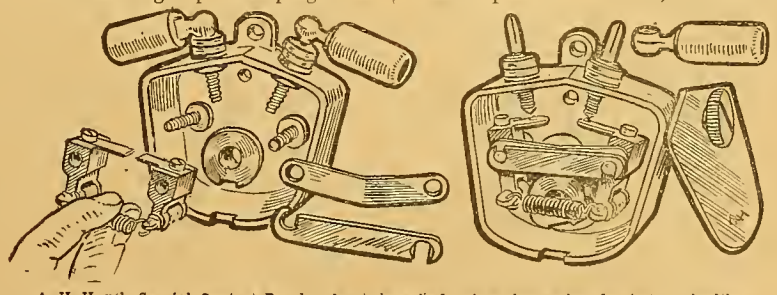
Bluemel's sparking plug has a patent enamel joint which is clearly shown in the annexed sectional illustration. In making up the plug the enamel is poured between the insulator and the metal body of the plug making an absolutely permanent gas tight joint capable of resisting the highest cylinder pressure. The enamel joint,



A section of Bluemel's Enamel Jointed Sparking Plug.

it is said, does not subject the insulator to any pressure, furthermore it allows for free expansion and contraction. The insulator itself is a special steatite. The plug points are all pure nickel and adjustable. The usual packing for making a joint between the insulator and the body is, of course, one of the weakest points of most plugs, and this patent enamel joint appears to solve the difficulty. (Bluemel Bros., Wolston, near Coventry.)

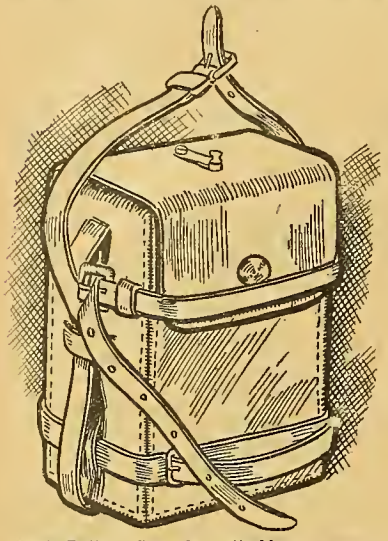
Despite the practically universal use of the high-tension magneto on motor cycles, there is still a demand for dry battery ignition, and though the majority of primary cells may be sold to supplant accumulators on old second-hand machines, it is interesting to note that Mr. F. A. McNab, the clever exponent of the Trump-J.A.P. motor bicycle on Brooklands Track, always uses a dry battery, a plain coil, and a make and break contact-breaker. It is for the Hellesen dry cells that the firm of A. H. Hunt and Co. is most famous, and wonderful results are obtainable from this method of ignition. It is not generally known that the secret of success with dry batteries is to render the work of the latter as light and intermittent as possible. A dry cell which is given hard work to do for a continuous period rapidly polarises, but, provided the work it has to do is either light or intermittent, it serves its owner faithfully and well, and will often last 1,500 to 2,000 miles when used for ignition. Naturally, a great deal depends on the coil, which should



A. H. Hunt's Special Contact Breaker for twin-cylindered engines using dry battery ignition

Electrical Appliances.

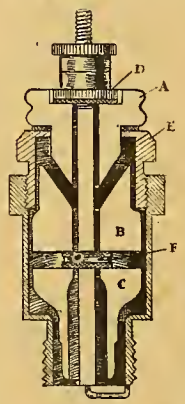
be as economical as possible, and in consequence coils should be used which use very little current indeed. During



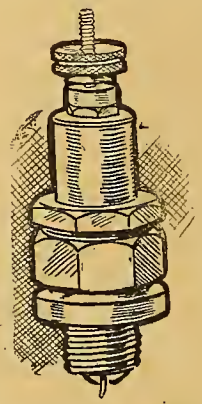
Flash Battery Case for attaching a spare battery to the frame. Observe the switch on the cover.

a recent visit to the company's depot, we saw a plain coil of A. H. Hunt's make, with which a delicate ammeter was put in circuit, register .15 amp. when working, and a trembler coil use .2 of an amp. The source of current was a Flash size Hellesen dry battery. It is interesting to note that in future all Hellesen cells will be supplied with insulated terminals, which will totally obviate shorting against the top of the tank. The same firm sell a special coil with two insulated secondary terminals for use with a double pole plug. Two types of cases are sold for the Hellesen battery. One is of metal and the other of leather. One of the latter is an especially neat model, as it has a switch fitted to its exterior, and is also specially designed to fit on Druid spring forks. A small electric lamp for use with a dry battery is sold at a moderate price, and is intended for town or short-distance riding. Other specialities which we saw were: An all-metal switch, a particularly neat fitting sold in two models (one-way and two-way), which is well made and positive in its action); a substantial sparking plug, to which a neat terminal can be fitted if desired; and a simple, ingenious, and efficient contact-breaker. (A. H. Hunt and Co., 115, Cannon Street, E.C.)

In these days when the fierce sparks derived from a magneto running at high speeds enforce the motor cycle rider to buy perfectly made plugs to stand their ferocity, a short description of the Pognon plug, which is one of the most substantial on the market, may be welcome. On referring to the illustration, it will be seen that the plug consists of three doubly baked porcelains—A, B, and C. The porcelain A is held firmly in position by the milled nut D, which presses it firmly against the shoulder of the gland nut E, which serves to keep the middle porcelain B pressed tightly against the two washers, one each side of the collar F turned on the central spindle, and also to keep the porcelain C firmly pressed against the bottom of the plug. The object of these three porcelains is to allow for unequal expansion, as it is unequal expansion which causes porcelains to crack. It will also be seen that when the central spindle becomes hot there is no risk of its expansion causing the joints to leak. A large hollow space round the central point also prevents any carbon forming, which may cause a short circuit. In the case of plugs sold for magneto ignition, genuine platinum points are fitted. It is interesting to note that Pognon plugs are used by the principal navies of Europe. Motor cycle Pognon plugs are guaranteed for six months. (H. M. Hobson, Ltd., 29, Vauxhall Bridge Road, S.W.)



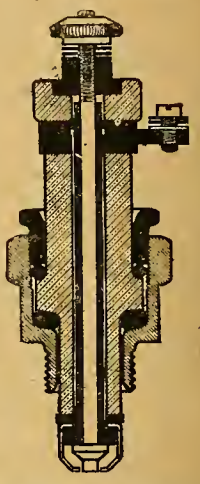
Section of the Hobson-Pognon Sparking Plug.
A. B. C. Insulators.
D. Milled nut.
E. Gland nut.
F. Separating washer.



The Oleo Magneto Plug with Mica insulator.

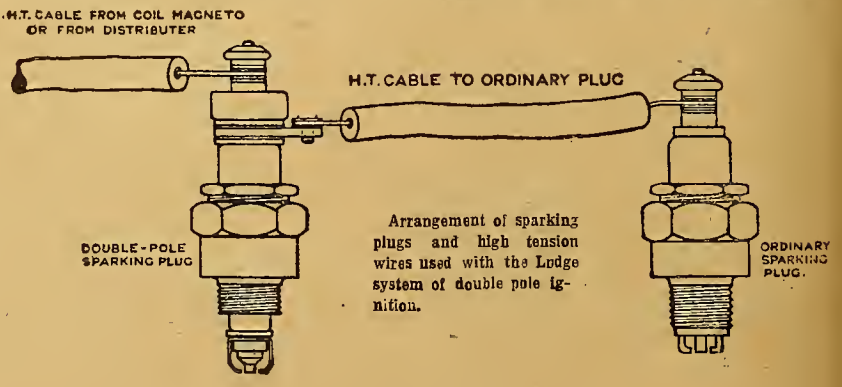
When we called on the firm of Leo Ripault and Co. we found the latest arrival was a strong spring fork. It will be one of the chief accessories of this firm, and has every appearance of being a useful adjunct to the machine. It is hardly necessary to say that Oleo plugs are still a leading feature of Leo Ripault and Co.'s stock, their latest being a sparking plug specially adapted to engines with combustion heads which are very close to the underside of the tank. One of the models is illustrated above. (Leo Ripault and Co., 64a, Poland Street, W.)

Most motor cyclists are interested in anything which will improve the running of their engines, and among the earliest devices used by racing motorists was a double or treble spark in the cylinder, occurring simultaneously. In the early days this could not be employed without a multiplicity of coils and a network of wires, but the increased number of sparks gave better results, or men like Cissac, Anzani, Barnes, etc., would not have used them on racing machines. However, any motor cyclist, with slight alterations to one-valve cap, can have a double spark by making use of the Lodge Double Pole Sparking Plugs. A double pole plug is merely an insulator containing two conductors or wires for the current insulated from one another. The current passes down one wire, jumps the gap, and passes up the other, searching for a path to earth. The frame or earth connection is made by connecting the second of the two insulated conductors to an ordinary sparking plug, and the current in its way to earth *viâ* the spark gap of the ordinary plug appears a second time, viz., at the points of the ordinary plug. Both plugs spark practically simultaneously, and the plugs are arranged one in the centre of the combustion head and one over the inlet valve. (Lodge Bros. and Co., 14, New Street, Birmingham.)



Section of the Lodge Double Pole Sparking Plug.

Accumulators are the leading line of Richford and Co., and the E.P.R. requires little or no introduction to motor cyclists. Guaranteed acid-proof clear celluloid cases form the covering, and, the four sides being formed of one sheet, leakage is impossible. Non-corrosive E.P.R. terminals are utilised; in fact, everything of the best is used. There are two separate types of E.P.R. accumulators—the acid and the unspillable. In the latter, spun glass takes the place of the celluloid separa-


H.T. CABLE FROM COIL MAGNETO OR FROM DISTRIBUTER
H.T. CABLE TO ORDINARY PLUG
DOUBLE-POLE SPARKING PLUG
ORDINARY SPARKING PLUG.

Arrangement of sparking plugs and high tension wires used with the Lodge system of double pole ignition.

"OVER THE HILLS"
"AND FAR AWAY"
"THAT CAN BE DONE"
"EVERY DAY"

ON

Continental

MOTOR CYCLE

Tyres

SPECIAL NOTICE.—Rubber Non-skid Motor Cycle Tyres, wired-on pattern, are specially made to fit the F.N. Motor Cycles.

Size 26 × 2¼ for single-cylinder machines.
„ 26 × 2½ for four-cylinder machines.

WITHOUT FEAR OF PUNCTURE OR SIDE-SLIP.

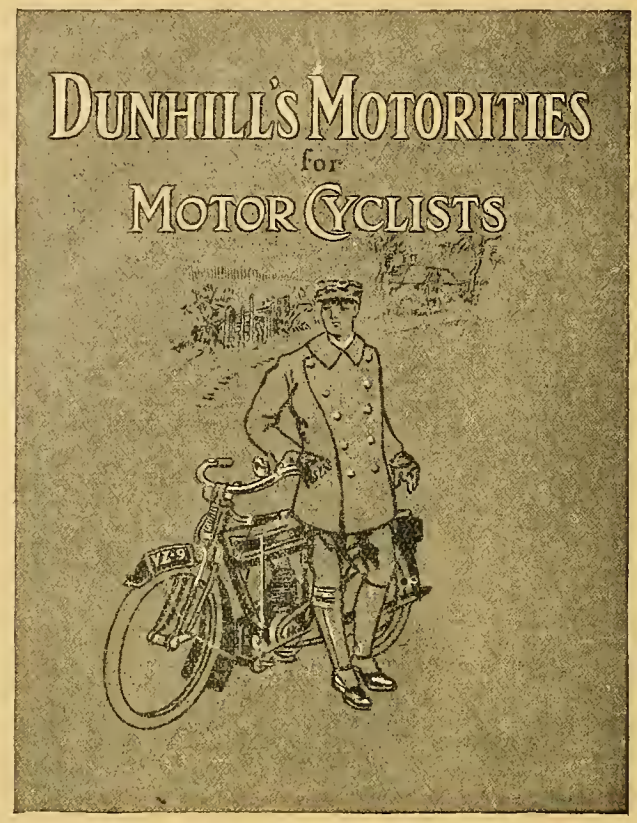
The ideal tyres for winter riding—they stand up on greasy roads, are resilient and durable.

BOOKLET FREE ON REQUEST.

Continental Tyre & Rubber Co. (Great Britain), Ltd.,

102-108, CLERKENWELL ROAD, LONDON, E.C.

In answering, this advertisement it is desirable to mention "The Motor Cycle."



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DUNHILL'S,

359, EUSTON RD., LONDON, N.W.

MANCHESTER:
88, Cross Street.

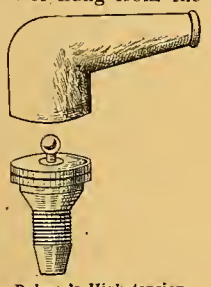
GLASGOW:
72, St. Vincent Street.

In answering this advertisement it is desirable to mention "The Motor Cycle."

Electrical Appliances.

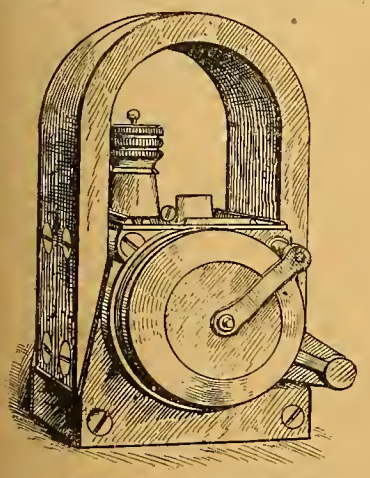
tors, and this absorbs the acid and simultaneously holds it in suspension. Internal shorting is impossible in this type. A speciality in which Richford and Co. deal is the Richford grinding compound for grinding in motor valves. It has the advantage of always being ready without mixing. Richford soldering paste, which is specially to be commended for electrical purposes, and will make a fast joint between any metals except aluminium, is another useful adjunct to the motor cyclist's kit. (Richford and Co., 153, Fleet Street, E.C.)

One of the hardiest and most practical little devices for preventing trouble and annoyance caused by short circuits from the high tension terminal is the Palmer magneto terminal cover. In the case of twin-cylinder magnetos we have found one of these covers to be of very great service when placed on the front terminal which is apt to catch the mud and wet flung from the front wheel more than the single-cylinder model. The cover is made of india-rubber, and is so shaped that it grips the insulated portion of the brush holder and the high tension wire, thus preventing mud and wet reaching the metal parts of the terminal and connection. It can be fitted in a moment, and the h.t. wire can be removed from the terminal and replaced without taking the cover off. (R. Palmer, 30-31, New Bridge Street, E.C.)



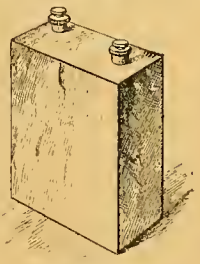
Palmer's High-tension Terminal Cover.

The makers of the Simms magneto machine have been closely associated with the manufacture of these useful accessories for no fewer than seven years. All Simms magnetos are now provided with ball bearings and all are constructed more or less on the same lines. The addition of the ball bearings and the carrying of the condenser on the armature-shaft are the latest improvements. In other respects these machines follow standard lines, carrying the low and high-tension windings on the armature, and thus dispensing with the need of an extra coil, while the contact breaker is provided with a steel cam, the rocker being insulated by means of a fibre contact block. The Simms new high-tension terminal is a great improvement, and is amply efficacious against wet. The chief types are the S.M¹. (which we illustrate), for single-cylinder machines, the S.V.M. for twin-cylinder V engines, and the lightweight magneto As regards accessories, the Simms Magneto Co. have introduced an excellent magneto cover made of *papier-maché*, hydraulically pressed and moulded to the exact form. These covers are also strengthened at the angles, and being oil and waterproof cannot lose their shape and cause short circuits by so doing. As they fit exactly, they do not require any extra fastenings after being slipped over the magneto. The Simms plug is one of the most substantially constructed on the market. The body is of the best steel and the insulator is of special unbreakable material. The electrodes are substantially made, and are quite tough enough to stand the hot sparks produced by a magneto. (The Simms Magneto Co., Ltd., Welbeck Works, Kilburn, N.W.)



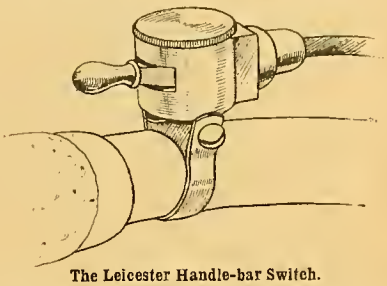
The Simms Magneto for single-cylindered engines.

Among the advantages which dry batteries possess may be mentioned cleanliness and reliability; there is no need to charge them, and they are unaffected by vibration or rough usage. On account of their low internal resistance, the Siemens-Obach dry cells have a large output of current. The Siemens Co. recommend the carrying of two batteries connected to a two-way switch, so that they may be used alternately. Like other manufacturers of dry batteries, they also recommend the use of a specially economical coil and suitable contact breaker, giving as quick a break and as short a duration of contact as possible. Siemens batteries are made in all sizes, and are provided with a special locking terminal, so that the wires cannot come loose. In some cases it may increase the life of the battery if a small adjustable resistance is placed in circuit, and the company supply a special adjustable resistance for this purpose. (Siemens Bros. and Co., Ltd., Caxton House, Westminster, S.W.)



The Siemens Dry Battery.

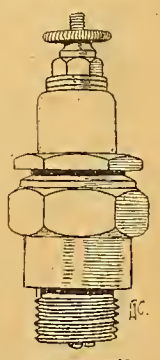
It is unquestionably an advantage to have a switch on the handle-bar for use with either form of ignition. In the case of battery ignition the switch is, of course, provided to prevent the batteries running down when the machine is not in use. For magneto ignition it is most serviceable in connection with the cooling of the engine. For instance, when descending a long hill the magneto can be switched off, and the throttle left slightly open when the engine, if previously overheated, will cool more rapidly with a little cool gas entering the cylinder than by any other means. It is also useful for controlling speed. The subject of our illustration is the No. 1 Leicester switch. (T. Wathes and Co., 88, High Street, Leicester.)



The Leicester Handle-bar Switch.

The United Motor Industries have for many years devoted their attention to motor cycle accessories. At the present time they are fortunate in having a manager who is himself a practical motor cyclist—Mr. A. Hoffmann, who we remember some years ago was a prominent competitor in Motor Cycling Club events. The chief speciality of the company is the Eisemann magneto, which first came into prominence about 1902, and differed from its successors in that it has a separate coil. The latest type of Eisemann motor cycle magneto follows standard practice, and carries both high and low-tension windings on the armature. Another speciality of the U.M.I., Ltd., is the L.M. plug, which has stood the test of time. Every L.M. plug—and there are numerous patterns—has a porcelain insulator which has been twice baked, and after using a great number of these plugs on air-cooled engines we have never once had a porcelain crack. (The United Motor Industries, Ltd., 45, Poland Street, Oxford Street, W.)

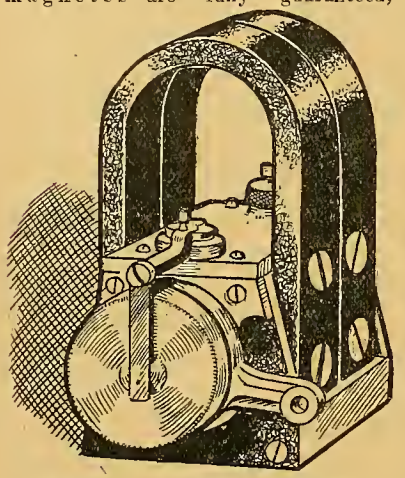
The Pyramid sparking plug, as illustrated, is a well constructed article with porcelain insulation, and is specially made for motor cycle engines with small diameter recesses in the valve caps. It has one central wire and three sparking points on the body. The Warrior is another pattern with mica insulation and body constructed wholly of brass. The central conductor terminates in a star with eight points in close proximity to the body. On this plug the points project a considerable distance into the combustion head, but as the firm makes so many different patterns a sparking plug can be procured to suit any motor cycle engine on the market. (Sphinx Mfg. Co., 242, Bradford Street, Birmingham.)



The Pyramid Sparking Plug.

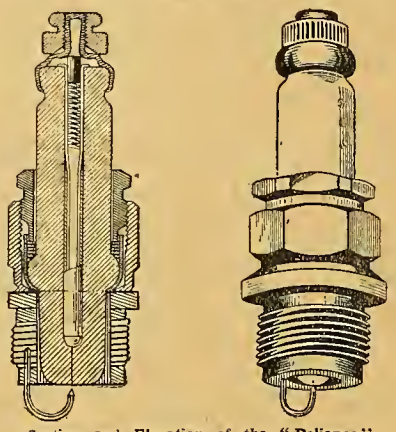
Electrical Appliances.

A particularly neat magneto machine is the "N.F." In accordance with the latest practice, the armature carries the high and low-tension windings, the former being wound over the low tension winding and highly insulated from it. The condenser is fitted in an insulated metal case, the whole of which fits between the magnets, and is immediately over the armature, thus protecting the latter from oil and dirt. The magneto is most accessible. The contact breaker can be easily adjusted and all parts are interchangeable. It is interesting to note that the wearing parts of the contact breaker are of steel insulated with fibre, thus rendering them durable and free from trouble. "N.F." magnetos are fully guaranteed,



"N.F." Magneto, type 1 M.R., for single-cylindered engines.

and, we are told, are tested before being dispatched to spark up to 5,000 r.p.m. The contact breaker of the Wolf magneto shows considerable originality. The whole of the interior mechanism is mounted on a fibre ring attached to the base plate of the timing lever disc. The rocking arm has a slot cut at one of its extremities, and in it is carried a fibre contact block, which comes in contact with a steel cam on the armature shaft, which actuates the make and break. The whole of the contact breaker is accessible and easily dismounted. The condenser is carried over the armature, and the magneto has the decided advantage of giving a good spark at remarkably slow speeds. (Wolf and Co., 138, Southwark Street, S.E.)

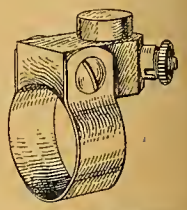


Section and Elevation of the "Reliance" Sparking Plug.

A special feature of the Reliance sparking plug is a very fine hair-like insulator which is embedded in the porcelain. This very fine insulator causes the spark as it leaves so minute a point to be concentrated to such a degree that the heat of the spark directed against the surface of the insulator instantly destroys any short circuiting matter surrounding the point. As will be seen on reference to the sectional illustration, contact with the fine platinum wire is made by means of a copper quill surrounded by a mica tube to prevent leakage of current in case of an accidental fracture. The current passes from the cap or copper quill to the central conductor by means of a small piece of high resistance material, which serves the same purpose as an air gap. The great claim made by the makers of this plug is that it sparks in water—a feat which it is said is not possible with any other sparking plug. (S. and F. Stephenson, Hopwood Street, Liverpool.)

In addition to accumulators, headlights, coils, and other electrical accessories, Messrs. Vandervell have their own magneto, a well made and most efficient machine provided with ball bearings. It is an easy starter, very light and neat in appearance. It follows standard lines as regards design. (C. A. Vandervell and Co., Warple Way, Acton Vale, W.)

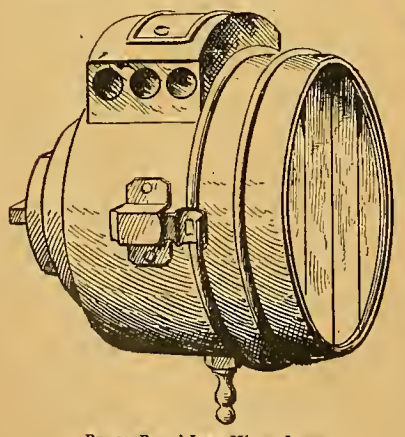
A handle-bar magneto switch which can be most quickly put in and out of action is the Ryley. It is most simply constructed, and consists of a band clip for the handle-bar and an ebonite insulator, in which works a spring "push" electrically connected to the terminal shown on the outside of the ebonite insulator. The current is broken by pressing the push, and remade when it is released. (J. A. Ryley, Martinean Street, Birmingham.)



J. A. Ryley's Magneto Switch.

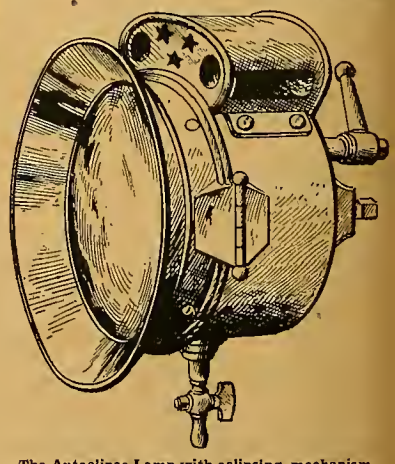
The "Autob" switch is a particularly neat electrical fitment intended to be attached to the handle-bar. The lightest pressure on the switch handle is sufficient to break contact, and the moment the handle is released contact is remade. It can therefore be used for controlling the machine in traffic, provided the ignition is not too far advanced. If it is desired to break contact permanently the handle is pulled back to its fullest extent, when it remains in the "off" position until the current is required again. (Utopian Works Co., 92, Myrtle Road, Leicester.)

The firm of Brown Bros. probably do as large a trade in motor cycle accessories as any other business house in Great Britain. Many of these items are proprietary articles, but



Brown Bros.' Lens Mirror Lamp.

there is one accessory for which the firm are justly famous, and that is our old and trusted friend the Autoclipse lamp. This lamp possesses some qualities to which no other lamp can lay claim. In the first place it is, we believe, the only motor cycle lamp which can be had fitted with an anti-dazzling mechanism, and those motor cyclists who pay the small extra amount required for this apparatus and use it truly deserve the title of considerate motorists. The device consists simply of a dull black disc which serves to cut out the reflector. The reflector is one of the best Mangin lens mirrors, and to add to its intensity the front glass is a weak condenser lens which results in a very powerful beam of light being shot forward. Added to the above the lamp is now provided with an extended



The Autoclipse Lamp with eclipsing mechanism, for which Brown Bros. are sole agents.

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FORECAST FOR THE EASTER HOLIDAYS.

The Weather will be—'Allweathers.'

SECURE THE RIGHT SORT OF CLOTHING FOR THIS TIME OF THE YEAR.

The SERVICE "COLDWEATHER" JACKET.
An essential for Winter Riding. Value Exceptional. Thoroughly Windproof.

Body and sleeves lined Tan Leather, fitted with windcuffs; 33in. long. In Grey Yorkshire Frieze, 25/6 (approval deposit). All sizes stocked. State chest measurement.
Chamois Leather Waistcoats from 11/6. Black ditto (Lined) 25/- Special line Jaeger Woollen Caps, 2/- Jaeger Throat Protectors, 2/- Dungaree Cleaning Jackets, 3/3 Dungaree Cleaning Trousers, 3/3.

SPECIAL LINES.

Tan Leather Gaiters, real pigskin, whole blocked, 9/6.

Tan Leather Gauntlet Gloves, 15in. long, 4/3.

Black Pigskin Gauntlets, 14in. long, 3/3.

The Celebrated Black Asbestol Gloves, with woollen wrist, lined, 6/6.

Best Rubber Goggles, 1/3 per pair.

Service Caps, with Ear Guards in brown, green, and grey tweeds, 2/6; best quality, 3/6.

PLEASE NOTE.—All goods sent on approval against deposit.

The SERVICE CO., Ltd.,
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Jacket and Leggings, 25/- (Approval Deposit).

The SERVICE "ALL-WEATHER" SUIT.
The Best and Cheapest Waterproof suit yet produced.

Guaranteed Windproof, Waterproof and Dustproof.
Fawn and Grey, double texture material, seam-stitched and solutioned extra strong. Jacket only, 16/6. Leggings only, 8/6. State height and chest measurements.
Trouser Overalls, with apron to protect stomach, 13/6. State inside leg measurement. Waterproof Bag for carrying All-weather Suit, 2/6.

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All the rage among those who know!

The MOTOR CYCLE OIL that cannot be surpassed,

SWARC "B"

WE HAVE SOLVED THE PROBLEM OF A PERFECT LUBRICANT.

Following a series of most severe Tests, under all working conditions, it has been adopted and is extensively used with unequalled results upon the following Motor Cycles—

ARIEL,	DE DION,	LEADER,	N.S.U.,	QUADRANT,
ADVANCE,	EXCELSIOR,	MATCHLESS,	NORTON,	TRIUMPH,
BROWN,	F.N.,	MOTO-REVE,	PREMIER,	ZENITH,
BRADBURY,	G.B.,	MINERVA,	PHOENIX,	&c., &c.
BAT,	HUMBER,	MIDGET,	ROC,	
DOUGLAS,	JAMES,	MOTOSACOCHE,	REX,	

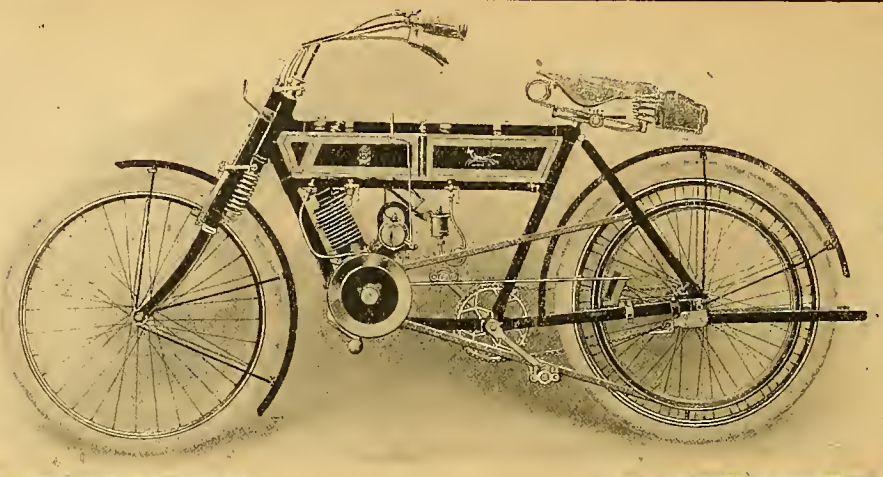
Try it and you will adopt it.

½-Gallon Tins, 2/2. Quart Tins, 1/4.

It will repay you, if your cycle or motor man does not stock Swarc "B," to send a postcard to—

Sir W. A. ROSE & Co., Sole Manufacturers, 66, Upper Thames St., E.C.

WHO WILL GIVE YOU THE ADDRESS OF ONE WHO DOES.



Costs little to buy, Upkeep and running costs low.

Hill Climbing, Reliability Pace, all Officially Proven.

GRAND MODEL B.

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Every bit British, not merely British assembling, but of British manufacture throughout—First-class British engine—Magnificently equipped—Many exclusive features—Special stand—Approx. weight, all on, 92 lbs.—No finer value obtainable.

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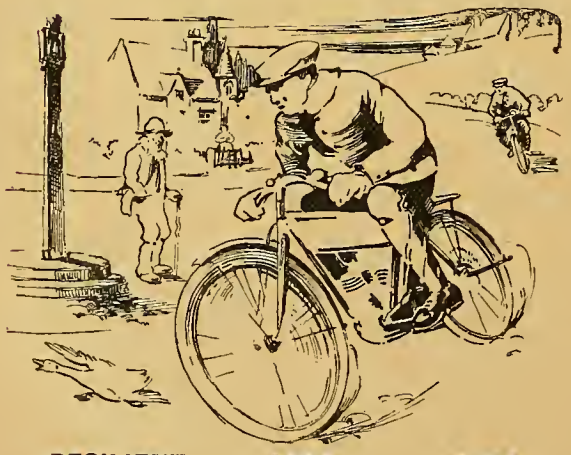
MOTOR CYCLE TYRES.



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These famous Tyres are made in four patterns but the

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Write for unique Catalogue which will give you all particulars.

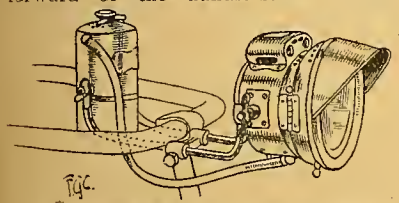
THE NORTH BRITISH RUBBER Co., Ltd., CASTLE MILLS, EDINBURGH.

(845.)

Lamps.

hood, and besides having the qualities referred to above, it is not only well and strongly made but beautifully finished. Now the lamp we have just described is a good one, and all good things are necessarily expensive. Still, not unmindful of the motor cyclist with the slender purse, Brown Bros. supply a well-made lens mirror lamp strongly built of one piece of metal (excluding, of course, the door), the body of which is enamelled either in one of three colours or black. The advantage of the enamelling is considerable, there is less bright metal to keep clean, and the hard enamel always looks smart and is most durable. The price of this lamp is remarkably low. Excellent drip feed generators working on standard lines are sold to supply gas to both the above-mentioned lamps. (Brown Bros., Ltd., Great Eastern St., E.C.)

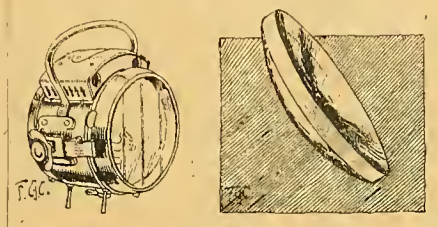
The Lucas separate generator headlight is a beautifully made article. Like all Lucas accessories it is not only made to sell but to last. The lamp and generator are carried on a double bracket made of steel rods in such a manner that the lamp projects forward of the handle-bar and the



The Lucas Headlight and Generator carried on one bracket.

generator behind. This allows for vertical adjustment, and at the same time balances the weight and removes some of the strain thrown on the bracket by vibration. Reference to the illustration of this lamp and generator will make our meaning clearer. The lamp is fitted with a mirror lens, thick glass to the door and hood to throw the light downwards. (Joseph Lucas, Ltd., Great King Street, Birmingham.)

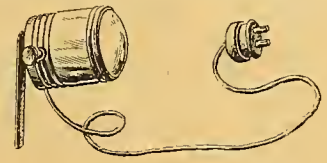
The "Polkey" acetylene projectors are splendid specimens of British workmanship. These lamps are made in two sizes. The larger one has side brackets for a forked lamp bracket, a bail handle, and legs which enable it to be stood upright on the ground or any convenient place while adjustments are made to the machine. The mirror lens is 4in. in diameter, and the front glass is divided vertically. The burner can be readily cleaned by means of prickers attached to thumb screws which are an integral part of the burner. Screwing these up sends the prickers through the holes in the burner, thus removing any particles of dust which are so liable to clog the fine holes of acetylene gas burners. The smaller pattern has all the features of the larger one, except that the mirror lens is smaller in diameter and a single bracket is attached to the back of the body instead of the sides. We have had some personal riding experience with "Polkey" projectors, and can recommend them to any motor cyclists who like a powerful light for night riding. (G.



The Polkey Acetylene Projector. On the right is shown the Special Mirror Lens.

Polkey, Ltd., Pitsford Street, Birmingham.)

An interesting accessory at A. H. Hunt's is a small electric lamp for short-distance riding fitted with a good reflector and a condenser lens.



An Electric Inspection Lamp which can be used for short distance riding.

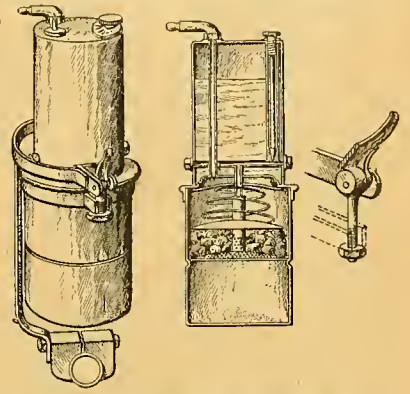
It has a new form of plug switch forming part of the wire connection, which is a particularly neat fitting. (A. H. Hunt and Co., 115, Cannon Street, E.C.)

An interesting article sold by the City Ignition Co. is the Cicoy motor cycle electric lamp, an exceedingly neat little fitting, which, when fitted with an Osram bulb, should be economical, and yet give a powerful beam of light. At the front of the bulb is a

The City Ignition Co.'s Electric Headlight.

condenser lens, accurately focussed, while green and red side windows are fitted. The lamp is provided with a patent switch plug lamp holder, which cannot drop out or shake loose. The City Ignition Co. also deal in lens mirror acetylene lamps with separate generator, and numerous other practical and interesting accessories and tools. (The City Ignition Co., 14, Spencer Street, Goswell Road, E.C.)

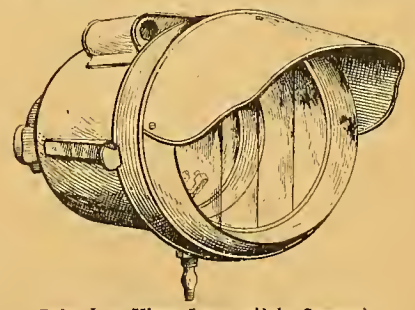
The Seabrook-Solar generator works on accepted principles, but it has been considerably improved. For example, the water does not drip direct from the tank to the container, but transversely across the bottom of the water tank there is a pipe carrying a wick. This pipe has a nut at each end, so that the wick may be readily withdrawn for cleaning purposes. On the top of the pipe the needle valve is fitted, and when the latter is open, the water first of all percolates through the wick before it reaches the carbide, thus controlling the drip to a great extent and allowing the needle valve to be fully opened without risk of flooding the container, and causing an over-production of gas. In the container, the carbide rests upon a grid, with the result that the vibration sifts the carbide residue to the bottom and



Elevation and section of the Solar Generator. The small sketch on the right is that of the eccentric toggle joint.

allows the carbide to be readily attacked by the water preventing dust from reaching the orifices through which the water and gas pass. Another point about the generator is the method of attachment of the container to the water tank. Instead of using a central screw, the attachment is effected by means of special lever clips or toggle joints. The lamp itself is well-made and most substantially built. It is fitted with a very fine lens mirror. There is a neat fitting at the back for the bracket. With the exception of the door the lamp consists mainly of one piece of metal, and all the riveting is done on the inside. (Seabrook Brothers, 32, Featherstone Street, City Road, E.C.)

The Pulco lamp is a particularly well-made article, fitted with a lens mirror as a standard, but which, if desired, may be fitted with a genuine Mangin

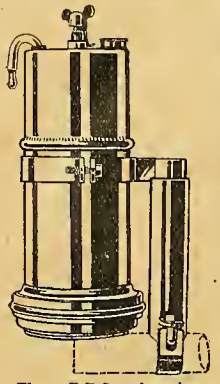


Pulco Lens Mirror Lamp sold by Gamage's.

mirror. The firm have also placed on the market a small electric lamp with the bulb in the centre (the most efficient position), which should be very useful, especially for short distances. (A. W. Gamage, Ltd., Holborn, E.C.)

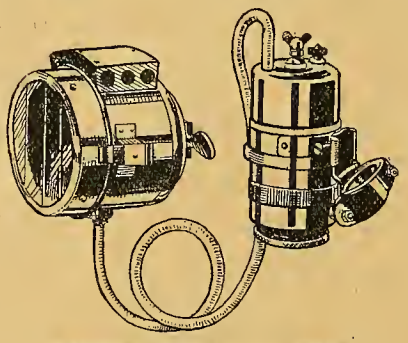
Lamps.

Well known to our readers as the makers of the F.R.S. lamps, which have quickly obtained an excellent footing among motor cyclists, the firm of S. Hall and Sons have made quite a speciality of their generators. The accompanying line drawing of the generator shows that a vertical tube is supported on the top rail of the machine by a stout clip. Fixed round the body of the generator is an adjustable band clip, ending in a tube or support, which telescopes into the one rigidly fixed to the frame of the machine. This method of attachment renders the generator instantly removable for the purpose of cleaning or replenishing, and at the same time the generator is held at a point where the adjustment of the water feed is in close proximity to the rider's hands. The interior arrangement of this generator is on the usual drip feed lines, but it also contains a grid or sieve which allows the spent carbide dust to fall to the bottom of the container, and leaves fresh carbide waiting to be attacked by the water. The F.R.S. automatic generator consists of two cylindrical compartments—one for the water and the other for the carbide. There is a small tap, which is turned full on or off. When the tap is on, the generation of the gases is quite automatic. (S. Hall and Sons, 18-20, Swinton Row, Edinburgh.)



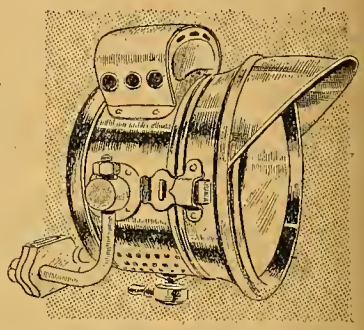
The F.R.S. Acetylene Generator and Carrier.

Motor cycle gas lamps are doubtless put to many uses on occasion besides illuminating the motor cyclist's path. The Broadhurst lamp was recently temporarily used to illuminate the rear premises of a provincial post office during a heavy holiday rush, when the postmaster found that it threw a strong beam of light for upwards of fifty yards. The lamp and generator are British made, and excellent value for the low price charged. The body of the lamp is solid brass, riveted and brazed. A powerful mirror lens is provided, and the whole of the lamp and generator nickel-plated. (R. Broadhurst, 25, Smithford Street, Coventry.)



Broadhurst's Headlight and Separate Generator.

The Powell and Hanmer acetylene headlight is a well-made article, which should commend itself to motor cyclists. The firm have been known for some years as manufacturers of cycle and motor cycle lamps, and their work can be depended upon to give every satisfaction. Our illustration shows that this headlight is supported on a special forked bracket, which is provided with a socket to fit the ordinary lamp iron. The body is of brass, riveted together, and the door hinge and catch are particularly strong and well constructed. The lamp has a 4in. mirror lens and thick glass to the front



Powell and Hanmer's Acetylene Headlight.

door. It is also provided with a hood to cast the light downwards. No back glare is possible, as the principal ventilating holes are at the sides of the cowl. A separate generator is sold for this lamp with a special bracket which attaches to any convenient portion of the frame or fork. (Powell and Hanmer, Chester Street, Birmingham.)

The C.A.V. electric motor cycle lamp is second to none, it is substantially made, beautifully finished, and accurately designed and constructed to give the maximum amount of light, while it is provided with a metallic filament bulb which is not only efficient but durable. To support it a special fork bracket is provided made in two halves to clip round the handlebar stem. We have thoroughly tested the lamp on the road, and can speak of its excellence after practical experience, and we are glad to hear it is meeting with a ready demand. (C. A. Vandervell and Co., Warple Way, Acton Vale, W.)

Riding Apparel

Situated in the centre of the motor cycle industry, it is not surprising that this firm of boot makers have specialised in motor cycle foot gear. Those who witnessed the Tourist Trophy Race last year doubtless noticed that several of the prominent riders wore particularly neat high-legged boots. These were specially introduced for the Tourist Trophy Race. They are, of course, equally serviceable for ordinary touring, and look very much neater than ordinary boots and leggings. The same firm make excellently shaped solid leather leggings for those who prefer them. (C. Ager, Smithford Street, Coventry.)

Ager's T.T. Boots, which were worn by a number of competitors in last year's T.T. race.

The Continental Tyre and Rubber Co. is responsible for the introduction of a pair of waterprof gauntlets, which prevent rain from being driven up the sleeves and are dark grey in colour. The backs of the gloves are covered with a preparation of rubber, while the underside is composed of leather. Inside the gloves are lined with wool, which makes them comfortable and warm. (The Continental Tyre and Rubber Co., Clerkenwell Road, E.C.)

John Piggott, Ltd., have an interesting display at their Cheapside premises of motor cycle clothing, among which we may mention a neat yet inexpensive suit of oilskins, which are rather lighter than those ordinarily used for seafaring purposes, the coat of which has a special storm flap, and the trousers are fitted with a gusset, and patent clips so that they fit round the calf and yet totally exclude the wet. The firm also make a special point of selling a Norwegian cap, made entirely of wool on the Balaclava principle, which is sold at a very moderate figure. They also manufacture a set of dust overalls, which are showerproof. The leggings amply protect the lower part of the body and strap round the waist, and there are slits in the sides so that the rider can conveniently reach his trouser pockets. A strap is provided to slip underneath the boots, and the coat is double-breasted. For cold weather an excellent soft chamois leather waistcoat is sold, the sleeves of which are made of the same material, but their outer portion is of Italian cloth, enabling the coat to be quickly slipped on. The lining of the sleeves is perforated so as to provide ample ventilation. Another interesting article is a pigskin legging made out of one piece of leather, which is neat and durable, and will fit almost anyone. John Piggott, Ltd., also market a practical waterproof coat, which is strongly built, is fitted with adjustable wind cuffs, is double-breated, and has the usual storm flap. They also make an umbrella coat fitted with a gusset at the neck, which buttons up securely, and is easily donned and doffed. (John Piggott, Ltd., Cheapside, E.C.)

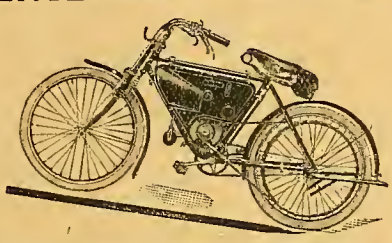
DON'T FORGET TO REMEMBER

WHEN DECIDING ON YOUR MOUNT FOR EASTER that the

MOTOSACOCHE

THE GENTLEMAN'S MOTOR CYCLE

Will travel at
4 to 30 miles per hour on the level.



Up gradients of 1 in 10
WITHOUT pedal assistance.

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MOTOSACOCHE, Ltd., 65, Holborn Viaduct, London, E.C

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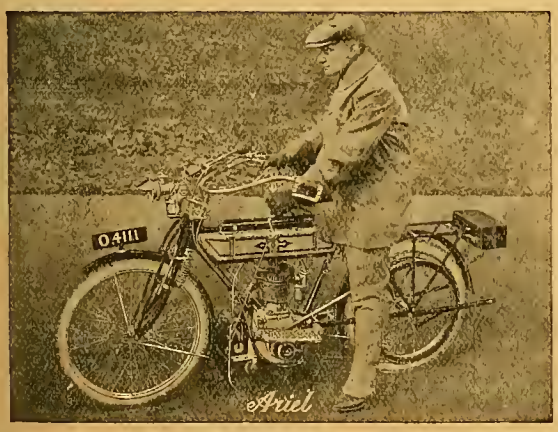


Price £50, nett.

Gradual Payment or Exchange price, £55 15s.

Delivered in time for Easter.

3½ H.P. MOTOR BICYCLE

Starts like a Car.

There is no need to run along pushing your machine if it is an "Ariel." You start the engine, pull the lever, and away you go with an easy, gliding motion. Moreover, the "Ariel"

Free Engine and Variable Gear

provides a reliable and easily graduated gear to suit all gradients.

Any of the Agents named below will give you full particulars:

Warrington & Co., Birkenhead.
Clayton & Sons, Birmingham.
Bevan, R., Cardiff.
Autocar Co., Cambridge.
Downie, Edinburgh.
Percy Cycle Co., Newcastle.
Snell, F., Plymouth.
Eagle Motor Co., Norwich.

Or write us for illustrated catalogue.

Components, Ltd.

BOURNBROOK, BIRMINGHAM.

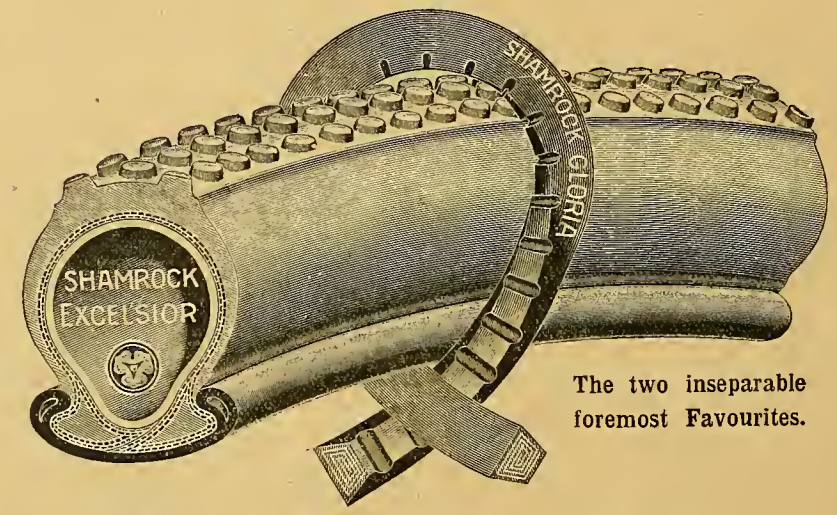
In answering these advertisements it is desirable to mention "The Motor Cycle."

Shamrock-Gloria

The incomparable qualities of S. E. Tyres and S. G. Belts are universally recognised. Let us remind you that the Great End-to-End Passenger Record, and many others, are held and were made by their use. S. E. Tyres are the heaviest and most durable of all; imitators only succeeded in copying the design.—— Compare before you buy!

Remember that S. G. Belts are fitted as standard equipment to Triumph, Rex, N.S.U., Bat, Matchless, Bradbury, Kerry-Abingdon, V.S., Roc, Arno, Clyno, etc., motor cycles. They made and hold many World's Records, and won the Tourist Trophy both in 1908 and 1909.

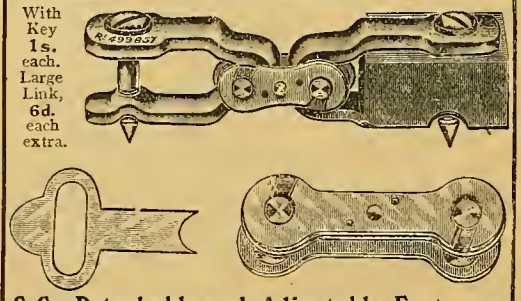
Be sure to buy the best!



The two inseparable foremost Favourites.

ALL GOODS SUPPLIED FROM STOCK!

With Key **1s.** each. Large Link, **6d.** each extra.



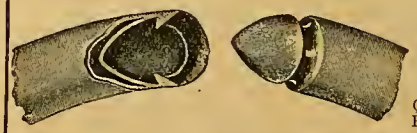
S.G. Detachable and Adjustable Fasteners.

Very flexible. Accurate fit. For ⅜in., ½in., 1in. S.G. Belts. Protected Design.

S.E. BANDS FITTED TO OLD COVERS

21/- each.

(Vulcanized on.)



S.E. Butt End Tubes.

Quickest and Easiest to fit.

Complete Catalogue on application.

THE HANOVER RUBBER CO., 29-31, Old Street, London, E.C.

Shamrock-Excelsior

In answering this advertisement it is desirable to mention "The Motor Cycle."

Riding Apparel.

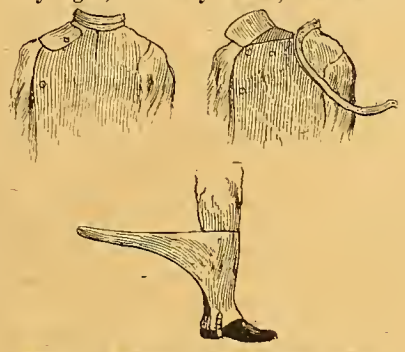
Any article made by the Dunlop Rubber Co. can be relied upon to give satisfaction. This firm make a speciality of motor cycle clothing. In the annexed illustration we show a pair of their waterproof motor cycling overalls. These protect the upper parts of the rider's body as well as the legs and thighs; in fact, they are practically waterproof trousers, and not merely single leggings with straps. The openings at the sides of the legs are fastened with patent spring fasteners, and the gaiter portions extend well over the lace openings of an ordinary walking boot. In addition to this item of motor cycle clothing, the Dunlop Rubber Co. make coats, caps, and suitings in several different patterns. (The Dunlop Rubber Co., Aston Cross, Birmingham.)

The Dunlop Rubber Co.'s Mackintosh Overalls.

The firm which makes the Bedford riding breeches, stock a large variety of specially woven riding tweeds, which make up into ideal breeches for motor cyclists. Every pair is made to the purchaser's measurements, and can be made up full or otherwise to the buyer's requirements. If it be desired the breeches can be provided with double seating without extra charge. A special feature is the strong trimming of these clothes. Jackets suitable for motor cyclists are also made by this firm. The Richmond leggings, either black or tan, are a sound investment for the motor cyclist. They are whole cut and blocked in one piece, which, combined with the fact that they are made of best hide, makes them a particularly strong article. Having spring fronts and clips they are easily adjustable. (The Bedford Riding Breeches Co., 51, Kingly Street, Regent Street, W.)

Bedford Motor Cycling Breeches.

There is no doubt that the motor cyclist has to face wet, wind, and cold under less defensible conditions than those existing with any other form of land locomotion. For him, liberty, warmth, and protection are absolutely essential for ensuring comfort and health, so that his garments require to be of a very special and efficient character. For such a purpose there is no better material than Burberry's Gabardine, which is wonderfully light yet very warm, and absolutely waterproof. At the same time, it provides sufficient ventilation to obviate the disadvantages offered by oilskins or macintosh. Burberry's have just brought out a most excellent motor cycling suit, made of Gabardine lined with fleece. The coat is double-breasted and has a wide overlap, while it is fitted with a puttee collar which wraps completely round the neck and then fastens on the collar of the coat. With this coat, which is not only light, but very warm, the motor cyclist is excellently protected, especially as regards the parts of the body most vulnerable to chill. Excellent wind cuffs are provided to the sleeves. The leg overalls are lined with wool, and a puttee attachment is supplied, which fastens tightly round the calf and is held in position by patent fasteners. With this set a cap made in the Balaclava style is sold, which can be turned down to protect completely the ears and chin of the wearer. This suit is one of the best of the kind we have yet seen, and as we can speak from experience of the efficacy and comfort of Burberry's Gabardine, we have no hesitation in recommending it to our readers. (Burberry and Co., 30-33, Haymarket, S.W.)

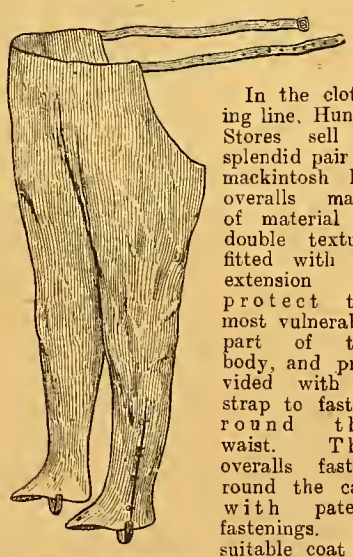


Burberry's Gabardine Outfit for Motor Cyclists.

The Para Rubber Co., as their name implies, make a speciality in waterproof clothing. The suit illustrated consists of coat and legging overalls, in Paramatta waterproof material of first rate quality. The same firm sell suitings in heavy Irish tweeds double-breasted coats, lined camel fleece and fitted inside with a large pocket containing a leather tool roll. High-legged boots are another speciality. (Para Rubber Co., 93, John Bright St., Birmingham.)

Clothed in the Para Rubber Co.'s Paramatta Suit.

A. Dunhill, Ltd., have now decided to turn their attention seriously to catering for the interests of motor cyclists. They make a point of an excellent suit of overalls, light yet strong, and at the same time thoroughly waterproof. The coat is long, so as to protect the seat, while the leg overalls, which are fitted with patent hook fastenings, are fitted with an extension to protect the lower part of the body, and a strap to keep them firmly in position, and to keep the rider warm. Of the excellence of Dunhill's waterproof overalls we can speak from experience, as we have had a set in use for some time. As an alternative to the waterproof coat they sell a special poncho, which is well adapted for the use of motor cycle riders. It is slipped over the head and fastens round the neck with the aid of buttons and a strap. For ordinary weather Dunhill's supply a triple whipcord, double-breasted coat, which is warm, comfortable, and is sold at a moderate figure. In addition to the waterproofs, the holland dustproof overalls will be useful when the warm weather arrives. At the present time warm waistcoats are likely to appeal to motor cyclists. We were shown a chamois leather under waistcoat, which was beautifully soft, and, of course, intensely warm. Under garments are also supplied of the same material. (Alfred Dunhill, Ltd., Euston Road, N.W.)



Hunt's Mackintosh Overalls.

In the clothing line, Hunt's Stores sell a splendid pair of mackintosh leg overalls made of material of double texture fitted with an extension to protect the most vulnerable part of the body, and provided with a strap to fasten round the waist. The overalls fasten round the calf with patent fastenings. A suitable coat is sold to go with these garments. (Hunt's Stores, Newgate Street, E.C.)

The Albany motor cycle suit consists of jacket, overalls, and cap all made to match in guaranteed absolutely waterprof paramatta cloth, and in two colours—grey green and fawn. The jacket is provided with storm cuffs, is made of double texture material and double breasted. The overalls button from the knee downwards and are made in single legs or trousers, with front to protect the upper part of the body. (G. Raws and Sons, the Albany, Oldhall Street, Liverpool.)

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Butt-ended Tubes.

[4625.]—The only butt-ended tubes I have come across have been fitted with a pin valve. So far as my experience goes, these valves give about four times the trouble of the ordinary valves fitted to endless tubes. I should be much obliged if you would publish this letter, as I am sure it would tend to make "butt-enders" more popular. R. B. BOYCE.

Riding in Spectacles.

[4626.]—I am one of the unfortunate motor cyclists who have to wear glasses. In mist or rain they at once become useless owing to water collecting on the glass. Is it possible to wear any sort of goggles outside the glasses made of some transparent substance that, while not obscuring the vision, will at the same time prevent water collecting on the glasses? If so, where can they be procured?

The Motor Cycle is invaluable to us out here, our nearest approach to a "repairer" of any sort whatever being a Chinese blacksmith!

Pahang, F.M.S. SPECS.

Should Starters be Barred at Brooklands?

[4627.]—Major Lindsay Lloyd invites opinions of motor cyclists through your columns on the question of starters in Brooklands events. As a prospective competitor in this year's races may I suggest that starters should be permitted, as otherwise the strongest man with a light machine would score in the start. Personally I am not nearly so nimble and active as several well built riders I have seen in past events at Brooklands, and on that account (although not my fault) I should be left in the rear in the first hundred yards. To get over the danger of collisions between starters and competitors, why not have a broad line across the track, say twelve to twenty yards from the starting line, and prohibit any starters from crossing that line? This would prevent the "pushers off" straggling all over the track.

AUXILIARY EXHAUST.

Finish for All-weather Machines.

[4628.]—I heartily agree with the remarks of the correspondent referred to by Mr. Hulbert. Fancy vaselining and unvaselining seventy-two spokes. Every practical rider knows perfectly well that this dazzling spoke business is simply a question of appearance Fancy an up-to-date car with plated (so-called) rims and spokes. It is really about time this was done away with and properly enamelled spokes and rims insisted on, and then we shall have got rid of about the last of bygone absurdities. I think we are all about sick of bicycle cleaning, and the sooner the all-weather machine comes on the scene the better, as the push bicycle has already done.

PRACTICAL AND NOT ORNAMENTAL.
(Member of the Edinburgh M.C.C.)

[4629.]—In the issue of the 7th inst. R. G. Lindsay recommends aluminium paint for motor cycle frames, spokes, and hubs. A few years ago I painted my pedal cycle as friend Lindsay did his, but in my case the paint quickly wore off, and in three months the rust was showing in many places, although I often touched up the bad parts as soon as seen. What I would like to know (and no doubt many others would too) is how to make the aluminium paint more permanent. If your correspondent can enlighten me I shall be very grateful to him. A. DEAN.

P.S.—Having had an experience of aluminium, can some one give theirs of French grey paint or enamel, not stoved?

Brooklands Hill-climbing Certificates.

[4630.]—*Re* the paragraph in last week's supplement concerning Brooklands hill-climbing certificates, I suggest the item of most importance to note on the certificate is the gear of the motor cycle at the time of climbing the hill.

W. A. SANSOM.

A Puzzle or a Poser?

[4631.]—Regarding the blowing back of a spray of petrol from the air holes of a carburetter. I used to ride a 3 h.p. chain-driven Humber, with the carburetter high up on the right-hand side, and when travelling at a fair speed I always noticed a spray of vapour blowing out of the large gauze-covered air hole. I must say I never troubled to consider what the cause of it might be, but "Ixion's" article explains it. It was an automatic inlet valve, and the machine always ran wonderfully well. H. B. M.

The Surface of Sutton Bank.

[4632.]—Seeing in *The Motor Cycle* that Sutton Bank has wintered badly, I well remember similar complaints last year; still, all was ready just the same. However, if the A.C.U. will wait a bit we will see what can be done. A motor cyclist here is going to "have a go" at Sutton Bank in two or three weeks, and I hope to examine the hill myself in a month's time, when I shall be pleased to give my opinion through *The Motor Cycle*. There is plenty of time to get the celebrated hill into condition. One would think it was more important than the Budget.

Pickering. W. WRIGHT.

Club Competitions.

[4633.]—Whilst not agreeing with "Ixion" in the first part of his advice to club secretaries, which by the way would be rather a strenuous task for the secretaries of the larger clubs, I entirely agree with the latter half. Nowadays competitions are promoted in which no "old crocks" such as I possess would stand an earthly chance.

These big runs are all right for the man with a large income and the trade, who can afford to own and supply machines that are new and right up to date. But with such as myself a machine has got to last three or four years, and towards the end of that period gets a bit "short of breath" so to speak, and is only good for such rambles as he suggests. I am sure there are others who own such machines as I have described, and who would welcome these "simple" competitions with open arms.

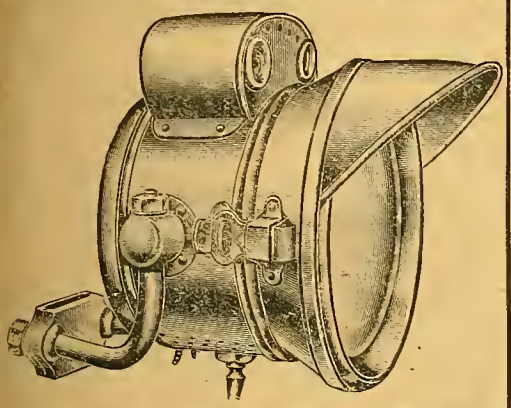
BERTRAM F. G. FOWKE.

Perpetual Motion?

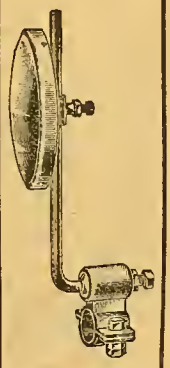
[4634.]—In your issue of February 14th you publish under Recent Patents a short account of an engine which it is proposed to drive by compressed air. Surely this cannot be serious on the part of the patentees. It is proposed to compress sufficient air in the tank to start the engine, and then by means of the geared pumps to replenish the air supply. This is somewhat after the style of the idea of making a motor drive a dynamo and then using the current produced to drive the motor. It is obvious that there must be a loss in pressure in the cylinders due to friction and in the turbine due to the effort required to move the rotor. Then the work given out, that is the pressure coming from the pumps, must be less than that coming to the engine, and so it would be impossible to force the air into the tank. To get any motion at all the efficiency of the engine must be greater than 100 per cent., which is, of course, absurd. C. A. COPPACK.

KERRY ACCESSORIES.

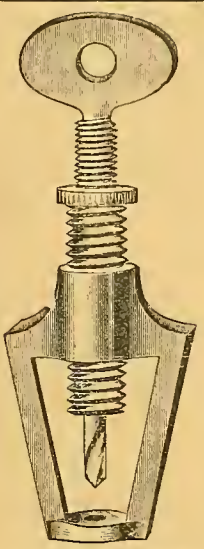
BEST that MONEY CAN BUY.



The "Kerry" New Model Motor Cycle Lamp.—This lamp projects a powerful beam of light, is extremely well finished, and is fitted with a fork bracket, extra strong, to withstand the vibration of motor cycles. Price of lamp only, **18/6**; generator for same, **10/6.**



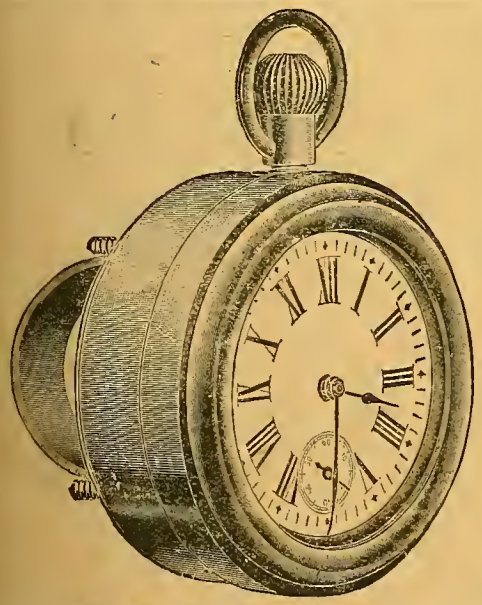
The "Kerry" Motor Cycle Mirror Adjustable to any angle. Price, **6/6** each.



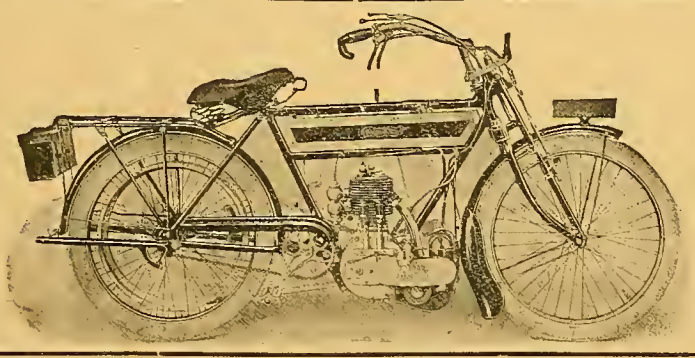
The "Kerry" Belt Punch. Fitted with central screw adjustment to ensure perfect accuracy in drilling of belt. Price **2/6** each.

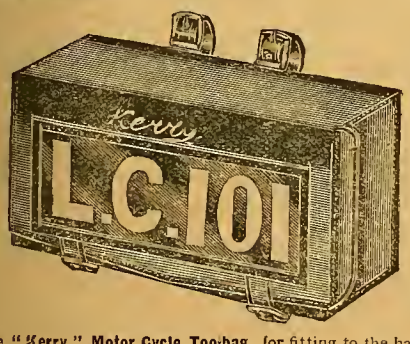
The "Kerry" magneto cut-out, for clipping to handlebar. Operated by hand without releasing the hold of handlebar. Indispensable for traffic riding.

The "Kerry" Oil.—High-class oil at a low price. Specially prepared for motor cycle engines. Quart, **1/-**; half-gallon, **1/10**; one gallon, **3/6.**

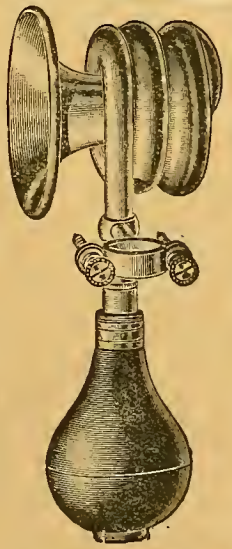


The "Kerry" Motor Cycle Watch, for clipping to handlebar. Price **6/6** each.



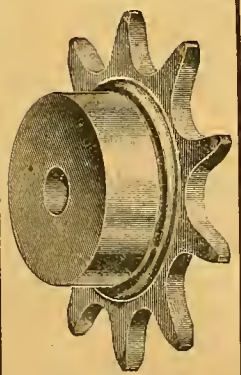


The "Kerry" Motor Cycle Toolbag, for fitting to the back of carrier below the surface, so as to leave the whole of the carrier free for luggage use. Price **7 6** each.

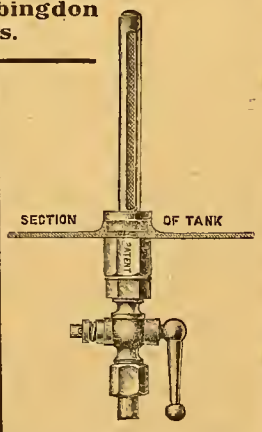


The "Kerry" Three-coil Duck horn. Price **6/6** each.

Write for illustrated Price List of Kerry-Abingdon Motor Cycles.



The "Kerry" Magneto Sprockets.—All sizes from 9 to 28 teeth stocked. Prices from **1/8** to **6/6**, according to size.



The New "Kerry" Petrol Strainer for Motor Cycle Tanks. Easily fitted by screwing the gauge into the existing petrol tap bush. Price of strainer only, **2/6.**

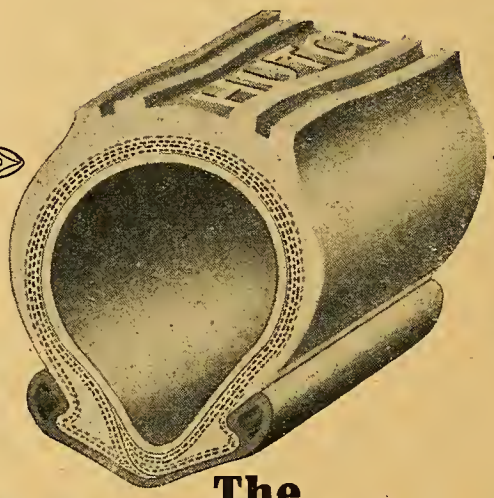
East London Rubber Co., 29-31, Great Eastern St., LONDON, E.C.;

or Kerry House, Furnival Street, SHEFFIELD; and 101-2, Thomas Street, BRISTOL.

Still Retains its Laurels!

The Hutchinson Square Tread attern.

With the word Hutchinson worked into Tread.



The HUTCHINSON

MOTOR CYCLE TYRE

still holds the World's Records for 50 miles, 100 miles, and 2 hours,

in spite of the many attempts that have been made by numerous riders to beat them.

Riders!

If you require immunity from tyre trouble, see that your machine is fitted with them.

Stocked by all the Leading Agents everywhere

THE HUTCHINSON TYRE,
70, Basinghall Street, London, E.C.

In answering this advertisement it is desirable to mention "The Motor Cycle."

Benzol as a Fuel.

[4635.]—I am thinking of purchasing a second-hand four-cylinder F.N., and should be glad if any readers of *The Motor Cycle* could inform me whether they have tried running one of these machines on benzol, and if so, with what results.

Would they give me the quality of the benzol used, and whether any alteration to the carburetter was necessary, as I am anxious to try it. R. P.

Increase of Speed on Partially Raising the Exhaust Valve.

[4636.]—I think most of the writers on the above subject are on the wrong track. I think if they alter the timing and give the exhaust a lead they will find that raising the valve will not make any difference to speed. When an engine has such a fault it is very dangerous, if the rider is not used to it, especially in going round greasy corners. The trouble can be cured by having the timing wheel made slightly larger or smaller, so as to make half a tooth difference, as one setting does not suit every engine alike—in fact, some engines will run with the exhaust valve having a lead of three teeth, which means the valve shut when piston has half an inch to travel before reaching dead centre.

PONY.

Causes of Overheating.

[4637.]—In explanation to "C. McC." [4593], a leakage of air between carburetter and engine in induction pipe or induction pipe joints will cause more petrol to be sucked off the jet than necessary if the motor is to fire at all, thereby causing a very rich mixture under any engine speed, assuming carburetter to be designed and set correctly.

This overheating, I find, cannot be remedied by closing the extra air lever to balance the air taken in at the joints, as the suction acts on the leakages in induction pipe before reaching the jet.

Now perhaps Mr. "C. McC." will want to know why some misguided twin enthusiasts drill extra air holes in their induction pipes which they find do not apparently cause overheating. I suggest these extra holes are for speed purposes only, and evidently carburetter and pipes are not designed for speeds above certain limits.

Again "C McC." might say that extra air holes tend to keep the engine cooler. Then why not drill the whole length of piping with holes, and have the engine as cool as possible?

I wonder if Mr. "C. McC." knows the difference between the oil pump and the explosion stroke yet. I assure him that there is a difference, but I will be kind, and assume that his education has not been neglected on this point.

P. G. J.

The Future of the End-to-end Record.

[4638.]—I have read with considerable interest Mr. B. H. Davies's article in *The Motor Cycle*. I quite agree with him in inferring that the actual speed a rider would have to travel to beat the record would turn out to be a public nuisance, as well as being dangerous; but I think the general public would be far more interested if a motor cycle travelled the whole distance at 20 m.p.h. without a mechanical failure of any kind.

I intend to do this later in the year, and I think I shall ride a 2 h.p. Moto-Rêve, which is only capable of 40 m.p.h. "all out" on the flat, but can average 20 m.p.h. all day with ease. Surely this would be a record for an engine of its cubic capacity.

I also notice he says it would be a pity for a "young sporting undergraduate" to lose his life in trying to beat Mr. Hart-Davies's record. So do I, as I happen to be an undergraduate! It will certainly bring a great deal of discredit on the sport if the End-to-end route becomes a racing track. C. PATTESON.

[There is no doubt that the Auto Cycle Union will put down all future attempts on the End-to-end record with an iron hand, and rightly so, too, as the speed is now too great to allow the ride to be safely undertaken, while the record rider is absolutely compelled to be driving at times to the common danger if he wishes to have any chance of breaking the existing record. If, however, any rider of a lightweight, or of any other type of motor bicycle for that matter, desires to accomplish the journey on a continuous run at 20 m.p.h., he is quite at liberty to do so, and if he were observed all the time (a difficult matter, it is true) the performance would be officially recognised by the Auto Cycle Union.—ED.]

T.T. Machines for Touring Purposes.

[4639.]—I notice that "Ixion," in his reference to my article which appeared in your issue of February 28th, is of opinion that I omitted to mention two drawbacks connected with the T.T. machines: An excessively cramped position for riders of more than small stature, and the necessity of supplementing the outfit with a pair of spring forks for touring work.

If he is generalising, well and good, but if his two "drawbacks" are to be taken as applying to the particular make of machine which formed the basis of my article, I would remind him that the wheelbase of the T.T. Triumph is reduced by employing shorter back stays—to bring the back wheel close up behind the diagonal tube—while the rest of the frame, including saddle pillar, footrests (front pair), and *spring* forks, remains exactly as in the standard model. T.T.T.

An encouraging turnout on the occasion of the first run of the newly formed Leicester and District M.C.C. Market Harborough was the destination decided upon.

Standardisation of Rims and Tyres.

[4640.]—We have noticed the letter appearing in your issue of the 28th ult. with reference to the above matter, and we are surprised to read the experience of your contributor "Ex-Lightweight."

We have manufactured rims for motor cycles for some considerable time, and beg to inform you that practically the whole of the tyre manufacturers have now come into line with regard to the fitting of their 2in. and 2¼in. tyres. As far as we are aware our 26in × 2in. rim will take 2in. or 2¼in. tyres made by the following: North British Rubber Co. (Clincher), Palmer Tyre, Ltd., Dunlop Tyre Co., Kempshall Tyre Co., and the Continental Tyre Co. We are under the impression that the Palmer Tyre Ltd. have done away with the 2¼in. tyre, which fitted on to the 2½in. rim, except in the case of replacements.

With regard to the 2½in. tyres, the tendency, as far as we can see at the present time, is to use the same sized rim as that used by the continental manufacturers, *i.e.*, the 650 × 65 mm. We may tell you that this is the rim which is specially used by the North British Rubber Co. for their 2½in. tyre, and also by the Palmer Tyre, Ltd., for their 2½in. studded tyre. We think there is no doubt that in the near future the whole of the tyre manufacturers will definitely fix upon the 650 × 65 mm. rim for their 2½in. tyre.

THE JOINTLESS RIM, LIMITED.
H. F. BEAMISH, manager.

The Motor Cycle in the United States.

[4641.]—I read in your valuable paper of February 7th the letter of "Disgusted Belt User" in America. Poor fellow, I am extremely sorry for him, as he must have had lots of trouble, with those poorly made English belts! He says he could only get an average of 300 miles out of an English manufactured belt. It seems to me very strange, when in Canada we often get an average of 3,000 miles from English belts over roads that they don't see anything like in Mass., U.S.A. It is common here in the spring to have holes in the road ten to twelve inches deep; roads that never see a load of gravel or stone—just a ploughed field with a fence each side. I wonder what he got disgusted at—the belts or himself? I have never heard an American yet give an English manufactured article its full credit when it is deserving. We can and always will give the English manufactured goods the preference, because they are superior goods in every way to the American goods. There are about forty motor cycles here, and they are all English made, and belt driven too; there is not a chain driven machine around here that I have seen. Not because the chain is inferior to the belt. But because we find the absence of vibration in the belt. If we used chain drive over these roads, I don't know what would become of the riders. I thought it was about time we wrote you to defend the old country goods, as I have always found them very satisfactory in this country, and hope I always shall. If the "disgusted" man is dissatisfied, that is not to say everybody is that way.

London, Ontario, Canada. BELT USER.

Lightweights v. Heavyweights.

[4642.]—May I ask Mr. Measures to keep to the point, viz., which is the more serviceable machine for the professional man who in all weathers has to make frequent calls, necessitating daily riding in traffic and constant wheeling of the machine through gateways and passages and in and out of its own shed.

Dr. Gaskell after much experience of all kinds of machines wrote in praise of the lightweight for this kind of work. Mr. Measures, in reply, professed to be much amused at a most sensible letter, and claimed that his heavyweight was just as handy and suitable.

Since I ride the same make of machine as Mr. Measures, I ventured to point out that, though young and active, I found it far too fatiguing for daily riding in traffic and dodging about from house to house, and asked Mr. Measures whether he knew what it means to pay a round of calls on a heavy machine in a busy town in all weathers day after day for, say, a year.

In reply to this, he again professed amusement, and tells us that, although he lives in an obscure hamlet in Sussex, nevertheless he sometimes has to go to Brighton or Southampton—distances, I believe, of about fifteen and seventy miles respectively—and that, therefore, he knows what it is to ride in traffic. May I point out to him that an occasional visit to either Brighton or Southampton is not daily riding in traffic, which is quite another matter. For long-distance riding—and surely Southampton and back is a long ride, for I take it that Mr. Measures, being a professional man, must get back the same day—the heavyweight, as I have already admitted, is *facile princeps*, but for gadding about in a busy town day after day in any weather it is absolutely unfitted, as Mr. Measures would soon find out were he to live in such a town, and were his work confined to it and the surrounding districts within five or six miles radius.

Mr. Measures takes umbrage at my criticism of his assurance that he starts and stops as often as thirty times in a couple of miles, which I pointed out resulted in one stop every 117 yards. He now goes beyond this, for he tells us that when playing with his juvenile mechanics and boy scouts he finds "it necessary to make" even "many stops in 117 yards." This is utterly beyond me. He asks me why I do not publish my name. To do so might possibly deprive him of that amusement which he repeatedly assures us he derives from this correspondence, so I refrain.

RUS IN URBE.

The Transmission Question.

[4643.]—With reference to the correspondence on the above, I would like to give you my experience of the so-called rigid type. I obtained delivery of a 5 h.p. F.N. on April 1st (surely an auspicious day) last year, and have ridden the machine practically every day since, having covered just on 10,000 miles. For the first 9,000 I never touched the transmission except occasionally to put in some grease. I then, unfortunately, broke two teeth off the small driving bevel pinion; no other damage was done, as I immediately removed the parts of the broken teeth. I procured a new bevel pinion at a cost of about 3s., fitted and adjusted same, and the machine now runs as quietly as ever. About five hundred miles were done with a sidecar.

I find tyres do not last long. I can only average about 2,000 or 2,500 on the back wheel, but I attribute this more to the bad roads I traverse here (Derry and Donegal) than to the rigid transmission.

I wonder more riders who do a lot of short-distance riding do not ride in long coats; they are so much less trouble to take off and put on than overalls, to say nothing of the looks, and they keep one just as clean. My coat is made of black rubber composition, very full in the tail, and can be cleaned in a minute with a damp cloth. With a small leather mud shield on a steel frame (home made at a cost of 2s. 8d.) and the long coat, I can on arriving at my destination take off the coat, and be perfectly clean and ready for business. As to the danger of the long coat, I have had three or four falls from side-slip, and the coat has not got in the way. Of course, before mounting you must throw the tails over the saddle. W. A. LANE.

SUMMARY OF CORRESPONDENCE.

Sinclair Wilmington writes: "Why ever doesn't some manufacturer bring out a complete belt cover? Such a contrivance, although offering difficulties, is by no means an impossibility, and surely a fortune awaits the first successful device."

EXPERIENCES WANTED.

"M. M. S." (Manchester) would like readers' experiences with the new 1½ h.p. Moto-Rêve, particularly with regard to petrol consumption, length and steepness of gradient it will climb with 11 stone rider without pedalling, and general handiness.

"F. F." (London) would like readers' experiences of the Mabon clutch and adjustable pulley on a 3½ h.p. engine. Would it render the machine easier to start and control in thick traffic?

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected manuscript, drawings, and photographs will only be returned provided a stamped addressed envelope is enclosed for the purpose.

ROC Two-speed Gears for Easter

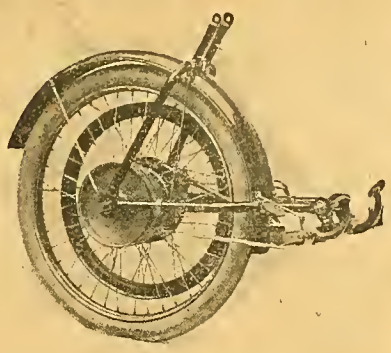
Send your machine at once if you want the ROC conversion for Easter. The conversion comprises new back wheel, 2-speed gear, pedal-operated clutch, live axle, hand-starting, new rear frame members, brake work, large section belt rim, etc., inclusive of fitting—finished and tested for immediate use—at Twelve Guineas. The conversion also includes the new ball-bearing improvement to gear box. In ordering your new mount, specify "ROC Two-speed," or consign your machine to us to be modernised.

NOTE.—The "ROC Two-speed" has the largest sale—adopted by leading firms under licence—the best tried system—enables you to glide away from standstill like a car.

Particulars from "Clutch" Dept.

A W Wall, Ltd., ROC MOTOR WORKS, Aston Rd. & Dartmouth St., B'ham.

Telephone: 5712. Telegrams: "Roc, Birmingham."



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* BAT
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* MATCHLESS
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ROC Military Models.

4 h.p. single and 5-6 h.p. twin include the Roc clutch and gear system in the standard specification. Booklet on application.

THE PALMER IS THE TYRE THAT DOES GRIP

Even on greasy roads, as the three ribs which form the tread present to the mud a solid wall of rubber, the bottom of which is in actual contact with the road. Users of Palmers can confirm this.

The tread of the Palmer Tyre is very thick, but contains no canvas or other materials that would affect its resiliency and cause the tyre to wear itself out at the expense of engine power and petrol.

WRITE FOR BOOKLET.

THE PALMER TYRE LTD.,
119, 121, 123, Shaftesbury Avenue, LONDON, W.C.
DEPOT: 103, St. John Street, Clerkenwell.

BOSCH

Accessories.

BOSCH PLUG.

Sparks with unfailing regularity. Never shorts, misfires, or gets sooted. Try it, and note the improved running of your engine.

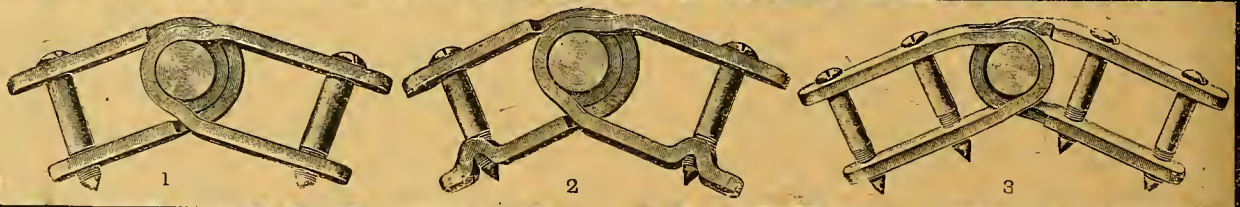
Price 3/6

THE BOSCH MAGNETO CO., LTD.,
23, Store Street, Tottenham Court Road, London, W.C.

Telegraphic Address: "Bomag, London."
Telephones: Gerrard 8610 (2 lines).

MAGNETO SPARE PARTS CASE

Contains duplicates of practically all parts:
DA1, 25/6 DA2, 30/- DAV, 31/6 Post free.
When ordering, state type of Bosch Magneto in use, and direction of rotation of armature when looking from driving end of magneto; and in V-shaped engines state angle of cylinders or make of engine.



Belt Fasteners that Grip

are the only kind to ensure satisfaction, and the gripping power is proverbial in the

N.S.U. Belt Fasteners.

They are easy to fix. You simply punch a hole in the belt, and once they are there nothing on earth will move them until required.

PRICES.

1	2	3
With 2 screws for ¾in. "V" belt 0 9	With 2 screws for ¾in. grooved "V" belt 1 0	With 4 screws for ¾in. "V" belt 1 0
„ 2 „ „ 1in. "V" „ 1 0	„ 2 „ 1in. „ "V" „ 1 3	„ 4 „ „ 1in. "V" „ 1 3
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N.S.U. Detachable Non-skids are cheaper than steel-studded tyres and just as safe. Easier to attach and detach, too.

N.S.U. Motor Company Limited,

Offices and Showrooms:
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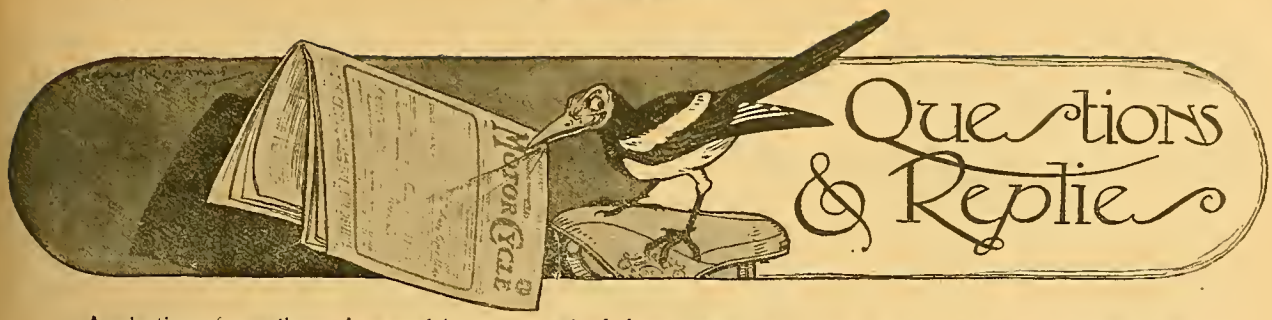
In answering these advertisements it is desirable to mention "The Motor Cycle."



A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Charge Blowing Past Rings.

With reference to the engine of my 1907 Vindec Special (engine, 5 h.p. twin Peugeot), the compression in the front cylinder was very bad, and when the machine was moved forward the air could be heard escaping with a hissing sound. Consequently I took the engine down, and found that the three piston rings (which are all on top of piston) are quite bright all round, except that each of the rings is black for a space of about one-eighth of an inch on each side of the aperture where they are cut. I suppose that I am losing power by this being the case, and shall be glad if you can explain why they are so blackened, and how I can remedy this.—T. P.

The dark mark on the rings seems to indicate that the charge is blowing past them, and we should therefore advise you to have three new rings fitted. If this does not restore good compression and full power, it may be that the cylinder requires to be re-bored and a new piston fitted.

Blow-backs in the Carburetter.

My 5½ h.p. twin motor bicycle has lately been giving me trouble in a peculiar way. The engine starts well, and runs well for perhaps a mile, perhaps more. Then suddenly there are several blow-backs in the carburetter, and the engine stops at once. Immediately after the stoppage there always seems on trial to be plenty of petrol in float chamber, and on dismantling carburetter the jet is perfectly clear. There is no obstruction on the gauze below float chamber, and the needle valve is set so as to give a high level of petrol. After a few minutes' waiting the machine will run again, but only for short distances, everything seeming to point to starvation of petrol, and yet, as I say, there is always plenty in the carburetter.—A. T.

We are inclined to think that the inlet valve may not close properly, and we should therefore advise you to examine the valve and stem, and especially the operating mechanism, and make sure that nothing is binding. A stem sticking in its guide would cause the blow-backs of which you complain. If the trouble still continues, make certain that the carburetter is heated properly, and try the effect of a restricted main air inlet.

Speed not Affected by Spark Advance.

Can you please tell me why my machine (a single-cylinder) will not answer to spark lever (high tension magneto)? No matter if I have lever advanced or retarded the speed is not altered. I have fitted new spring on contact breaker, also new fibre ring, but it made no improvement. Have also tried stronger inlet spring (a.o.i.v.) but without results. Is it likely that the magneto requires re-magnetising, as it has now been in use five years, but the strange thing is that it never misses, and gives a good spark?—G.J.

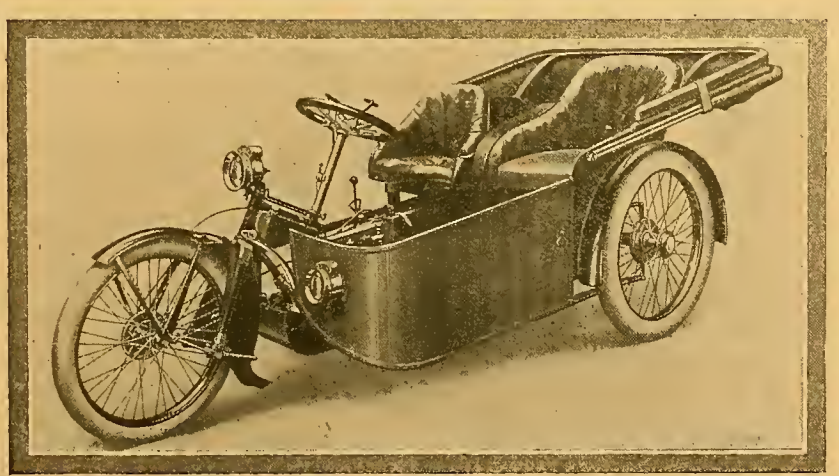
It is difficult to account for the trouble as you have replaced the fibre ring. This usually corrects any difficulty in the engine not being responsive to the movement of the spark lever. Examine carefully the bell crank lever, and if worn at all, replace this part also, and adjust the points so that they break .5 of a millimetre. If this does not effect the desired improvement, turn your attention to other parts of the engine. Perhaps the carburetter does not get sufficient air at high speeds, or the valves are not lifting their full extent. Also the springs have most likely lost their original tension.

Free Engine Clutches.

What is your candid opinion of free engines? Are they worth a place on a touring machine, and is it really possible to move off from a standing start with a normal gear, without a lot of care in manipulation? I have heard many conflicting statements. Does it hurt the clutch to slip it on a long hill, and is it likely to wear out quickly as a result?—B.J.A.

Our opinion is this, that where a rider cannot afford to fit a proper two-speed gear, a free engine is of great assistance. It must not, however, be expected to fulfil the same purpose as a variable gear. Provided the gear be properly adjusted and lubricated, you would be able to start from standstill with a normal gear, say about 4½ to 1, if you operate the clutch very carefully. It is not advisable to slip the clutch unnecessarily, as the plates would soon begin to wear. In addition, the constant friction would burn up the lubricating oil, and as soon as the plates got dry they would begin to seize, with disastrous results to the clutch parts and the hub bearings. A clutch on a single-geared bicycle has to perform very severe work, consequently it is advisable to treat it carefully.

A LUXURIOUS SIDECAR COMBINATION.



The bicycle is one of the new pattern four-cylinder T.A.C. three-speed worm driven machines, and, as will be observed, has a bucket seat and wheel steering. The sidecar is coach built and upholstered to match the bicycle, the whole presenting a very taking appearance. All wheels are suspended on laminated springs.

Silencer Dimensions. Single-geared Passenger Machine.

(1.) Will an exhaust box 6½in. by 3½in. be efficient enough to silence a 5 h.p. twin engine? (2.) Will a 5 h.p. twin with clutch take a sidecar anywhere in reason with a 4½ to 1 gear, and, if not, what gear? Weight of driver and passenger, 21 stones. Also can a clutch be slipped on hills without damage if the load is too much for the gear?—J. B. D.

(1.) The exhaust box should be big enough, but it depends entirely upon the design of its interior. (2.) The only method of taking a sidecar and passenger "practically anywhere" is by means of a change-speed gear. A 4½ to 1 gear would be too high for hills of 1 in 12 or 1 in 14. A clutch is not of very great assistance in hill-climbing. The clutch may be slipped a little on hills, and will enable the engine to run faster, and so develop more power, but even the best of motor cycle clutches cannot be slipped indefinitely.

Automatic Lubrication.

Is an automatic drip feed lubricator perfectly reliable in its working on a motor bicycle? Would it be safe to dispense altogether with the ordinary oil pump and fit the lubricator in its place? (This is the only way I could have one fitted to my machine.) Apart from the saving of trouble in looking after the oiling, would the alteration really be worth while, and for about how many miles might I expect it to prolong the life of my engine?—OILE.

You may rely exclusively on automatic lubricators during the summer months, provided you use oil of the same consistency throughout, so that you may have a reliable guide for the adjustment of the lubricator. We may, however, state that one of the failings of an automatic lubricator is that when the temperature is below freezing it is likely to cease working. If the rider stops and leaves the oil tank of his machine exposed to the cold the oil solidifies, and even after the engine has been started the oil has been known to remain sufficiently congealed to prevent it passing the needle controlled orifice. Consequently it would be advisable to retain the ordinary oil pump as an auxiliary if this can be arranged. It is impossible to estimate how much longer the engine will last with automatic oiling.

Magneto Switch. Even Firing.

(1.) Is it possible to connect up a switch to the magneto as fitted to my 2¾ h.p. twin Douglas, 1909 model, and if so, how should I do same? (2.) What is the object of the small screw on left hand side of timing lever situated mid-way, but rather farther back, between the two screws that hold on steel segment on that side? (3.) Although compression is good and all electrical apparatus seems all right, the front cylinder won't fire well under 10-15 m.p.h. if spark is at all retarded; that is to say, back cylinder fires beautifully in any position of spark lever, and will run as slow as you like, but the front fires only intermittently if retarded unless a lot more gas is given, consequently it is very difficult to ride slowly. I have tried practically everything, have changed over plugs and inlet valves, yet the same thing happens; when wire is disconnected it sparks properly if held near machine when running slowly. (4.) What do you recommend as best to use on a Harding triple band brake I have fitted? Cylinder oil does not allow of enough grip, and no oil is noisy and tends to wear out drum. —LB 2305.

(1.) It will be difficult to fit a cut-out switch to the magneto, as an insulated terminal, carrying a blade making contact with the screw securing the contact breaker, would have to be fitted between the steel segments of the advancing sleeve, and both the spaces available are unsuited for this, one space being occupied by the advance lever, and the other is covered by the rod holding the spring clip for the contact breaker cover. (2.) The object of the small screw mentioned is to take up any looseness that may manifest itself through wear of the timing lever carrying the steel segments. (3.) To obtain slow running, make sure that the platinum contacts are clean and very close, as also the sparking plug points, cut off partly or wholly the extra air, place the magneto lever at midway of its range and throttle down to the desired speed. If the valve springs are equal in tension and well screwed down there is no reason why the machine should not fire regularly at low speeds. (4.) It would be better to use dry plumbago.

READERS' REPLIES.

The Risk of Soldering Petrol Tanks.

I notice frequent references to the danger of soldering a tank which has contained petrol. It is true that even after filling with water and emptying enough vapour may be generated to cause an explosion. I suggest as an alternative that the tank be first well swilled out with paraffin. This would dissolve any remaining petrol, which would come away in solution. The tank could then be filled with water, and after again emptying there should not be the slightest risk.—F. ALCOCK.

Balance and Speed of Engine.

With regard to "G. A.'s" query in the last issue, I notice he says his machine is fitted with a trembler coil. May I suggest that he should try a plain coil and make and break, when I think his trouble will vanish. I once owned a motor cycle which had a very sluggish running engine until I changed the coil from trembler to plain and fitted a make and break contact.—BOBINE.

MOTOR CYCLING IN RUSSIA.

Despite very rough roads and an abundance of cobble stones, motor cycles are very popular round about St. Petersburg. The motor cyclists in the left hand photograph were snapped at Pulkowa. The 4½ h.p. Wanderer marked X won the Moscow to St. Petersburg road race in 1907. The best road near St. Petersburg, "Volkonskoe Schossia," is depicted in the right illustration. On this road, short distance car and motor cycle races are sometimes held.

Your wheels will grip

on the most greasy roads, and you need not fear a side-slip, if you fit

MICHELIN

Non-skid Motor Cycle Covers.

They are practically unpuncturable, and always remain efficient as non-skids until worn out.

Michelin Butt-ended Tubes

can be removed and replaced without detaching the wheel or dismantling it in any way.

Send for Illustrated Price List and Booklet.

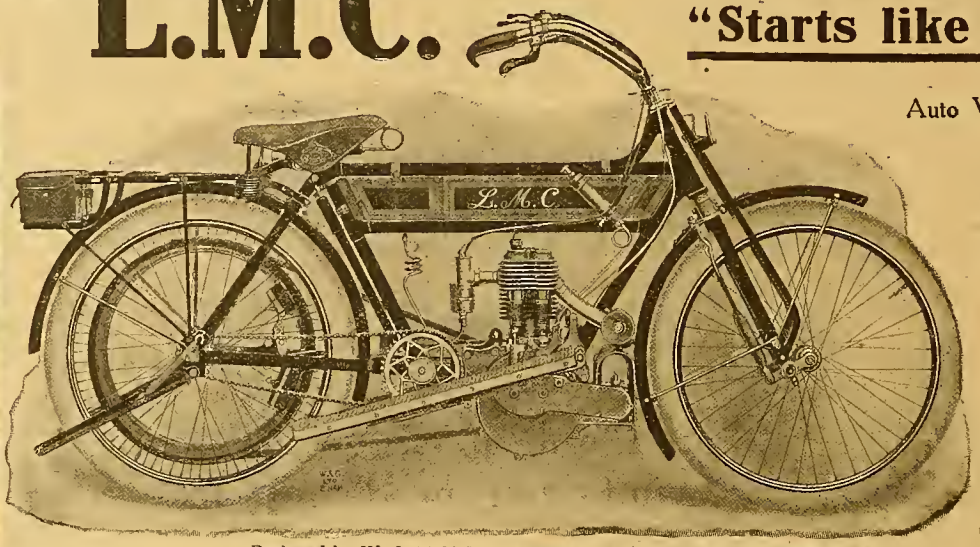
42-53, Sussex Place, — — South Kensington, — — London, S.W.

For PLEASURE or BUSINESS.

The L.M.C.

The Motor Bicycle that

"Starts like a car."



Auto Varia Pulley.
FREE ENGINE
(Pat. No. 19697, '08),
Footboard Starter,
L.M.C. 3½ h.p. Engine.
85 x 88 M.O.V.
Ball Bearings.
Patent Piston.

PRICE from
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Designed by W. J. LLOYD, Designer of the "ORIGINAL QUADRANTS"

A Luxurious Mount. Efficient. Reliable. Comfortable.

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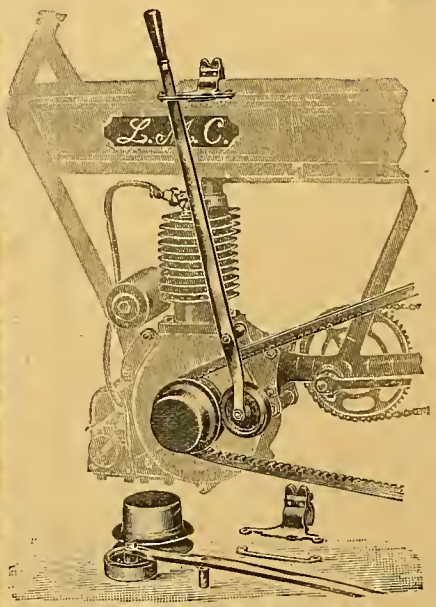

L.M.C. FREE ENGINE & A.V. PULLEY.

So Simple, yet Perfect

1. Start Engine, Machine jacked on Stand.
2. Bring lever into back notch (**Free Engine**).
3. Push off Stand.
4. Cross Machine, Release Lever into **Low Gear** Notch,

when

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L.M.C. Free Engine and Variable Patent Pulley, 63/- and 73/6.
Suits any standard engine.
L.M.C. Parts for "Original Quadrants" from stock. Lists free.
A few second-hand "Quadrants" for disposal, guaranteed perfect.

The LLOYD MOTOR & ENGINEERING Co.,

L.M.C. Works: 132, Monument Rd., Birmingham.

SLIDE VALVE ENGINES.

THOSE readers who visited the last Stanley Show, or who studied the detailed and illustrated description of the exhibits in *The Motor Cycle*, were doubtless struck with the extraordinary likeness of one motor cycle to another. There is a remarkable similarity in ideas and design, and it is very pleasing to find our manufacturers so perfectly in agreement as to the lines on which a motor cycle should be built, with the result that the intending purchaser has nearly a dozen excellent well-made machines from which to make his selection, anyone of which will be quite as reliable and satisfactory as another.

With identical frames, tanks, magnetos, tyres, and so forth, it is very clear that the individuality of a motor cycle must lie mainly in its engine, and, although at the moment all the popular makes have practically similar engines, it is safe to assume that manufacturers who desire a leading position will in the immediate future pay particular attention to improvements to this the most important item of the whole machine.

In what direction, then, will improvement be looked for? Will it be in the direction of an improved poppet valve engine, a two-stroke engine, or a slide valve engine, and, if so, which of these offers the motor cyclist most in the way of comfort, reliability, flexibility, power, and economy?

Is Finality Reached?

The present poppet valve engine seems to offer little room for radical improvement, the general opinion being that it has reached a point when improvement becomes almost impossible, except in very minor details, and we must consequently rely more on improved methods of manufacture and better materials if this type of engine is to be retained.

At the present stage of its career it is perhaps inadvisable to say much about the two-stroke engine, but many readers will remember that all the early attempts to employ this type of engine for motor cycle purposes resulted in failure, and, although it is possible that big improvements have been and will be made, it is nevertheless very doubtful if the simple two-stroke engine will ever reach the efficiency, flexibility, and economy of the four-stroke engine. In my opinion the defects peculiar to the former will be difficult to overcome, except by adding parts that rob the engine of its simplicity and make it as complicated as, or even more complicated than, the four-stroke type.

The Ideal Motor Cycle Engine.

To my mind, and after a long and careful consideration of the subject, the ideal engine for a motor cycle will be a slide valve engine after the design of the Silent Knight Daimler, and I propose, therefore, to deal at greater length with this type, and to indicate how and why it is so peculiarly suitable to the motor cyclist's requirements.

In a high-speed engine, as fitted to motor cycles, it is absolutely essential that the mixture should enter and the products of combustion leave the cylinder in the quickest possible time, and the engines that can do this most effectively must clearly be the most efficient, assuming, of course, that they are equal in other respects. It follows, therefore, that the more direct and unobstructed the passages to and from the cylinder are made, the more efficient will be the engine at all speeds. As the slide valve engine practically has its inlet and exhaust pipes bolted directly on to the cylinder wall, and opening directly into the combustion chamber, it is obviously as perfect in this respect as an engine can be, and is undoubtedly a vast improvement over an engine with tortuous passages of the older type, quite apart from the absence of a valve head which forms a very excellent baffle plate.

Greater Flexibility.

The slide valve engine thus holds a big advantage in having perfectly straight and unobstructed inlet and exhaust passages, so that high speed, increased torque at low speeds, greater flexibility and power of picking up quickly, as well as economy, may be expected from this feature alone, not to mention the fact that getting rid of the exhaust gases quickly and *directly* from the cylinder is an important factor in obtaining a cool running engine.

The majority of motor cyclists would appreciate a really silent motor cycle, and there is no question about the good effect such a machine would have—a silent machine is at once suggestive of comfort and smooth running—by appealing to the thousands of pedal cyclists and others who are inclined towards motor cycling but to whom the noise is objectionable.

Silence.

Although a certain degree of silence is sometimes obtained by fitting an extra large and good silencer, there is seldom room for it on a motor bicycle, but by employing a slide valve engine we should get almost absolute silence without the necessity of using any special form of silencer. This is because the type of valve fitted to a slide valve engine operates in such a manner that only a comparatively gradual release of the exhaust gases occurs whilst the piston is moving about its lower dead point, the port opening increasing with the speed of the piston on its up stroke, so that full port opening coincides with the maximum speed of the piston. The result is that the release of the gases is more in the nature of a slow "swish" than a sudden "pop."

Now that car engines are usually so silent, the noise of motor cycle engines is brought into greater pro-

Slide Valve Engines,—

minence, and certainly deserves more attention than it seems to get, as it must appear very absurd to the non-riding public to see a noisy little motor bicycle following in the wake of a big silent car. A good deal of the silence of a big car is brought about by the fact that it is usually fitted with a four or six-cylinder engine and a huge silencer, and the noisiest motor bicycles only have one cylinder and a small silencer, but the non-riding public do not know this. There can be little doubt that motor cyclists would like to get rid of the poppet valves, not only because they produce noise, but because they give trouble in other ways. It is quite probable that slide valves on motor cycle engines would not only operate silently, but, owing to their limited movement and perfect lubrication, it is to be expected that they would never require attention in the same way as do poppet valves—in fact, their existence might easily be forgotten.

Moreover, it takes considerably less power to slide a sleeve than to lift a poppet valve against the pressure of partially exploded gases, and the action is, of course, far smoother.

As regards lubrication, a pump could be dispensed with and a drip feed arranged to feed oil directly to the sleeves (a certain proportion of oil would find its way into the crank chamber), the oil, in my opinion, being preferably fed to the lower end of the sleeves, and not to the top as in the Knight engine.

One point to bear in mind is that the usual type of exhaust valve lifter could not be employed with a slide valve engine, so that a valve or compression cock fitted in the combustion head and operated from the handle-bar would be necessary. However, a slide valve engine is almost as easily controlled as a steam engine, and should prove ideal for those who ride much in traffic.

Absence of Tortuous Passages.

The Knight engine has been proved a great success on Daimler, Minerva, and other cars, but there are many who doubt the practicability of employing this engine on motor cycles owing to the possibility of overheating, and difficulty with lubrication.

It must, however, be kept in mind that the outer cylinder is slightly longer than usual (about an inch), and there is a complete absence of tortuous passages or thick metal walls, apart from the fact that the exploded gases are literally shot directly from the cylinder, and consequently have no opportunity of dissipating their heat in valve chambers, etc., and all these features conduce to more effective cooling. As the head is removable, motor cyclists could easily alter the compression to suit touring, racing, and other conditions, by possessing, say, two spare combustion heads of different cubical capacity.

The Question of Balance.

There is, however, one feature of the Knight engine that makes me doubtful whether it can be suitably employed as a *single-cylinder engine*, and that is the apparent lack of balance in the moving parts.

A study of the engine, or of one of the many published diagrams, will show that at one period of the cycle of operations the two sliding sleeves are moving in opposite directions and in another part are moving together, whilst in other parts of the cycle one or both sleeves are travelling first with the piston and then away from it.

As the sleeves and piston are being literally shot up and down some hundreds of times per minute, it appears to me that some modification of the sleeve movement would be necessary to obtain really smooth running. Of course, in a four-cylinder engine the sleeves are perfectly balanced. With the sleeves perfectly balanced the single-cylinder slide-valve engine would be ideal for motor cycles, and, instead of the feared troubles from over-heating and lubrication, to my mind the engine, compared with the ordinary type, would run cooler and lubrication be simplified. It is fairly safe to assume that any reliable makers of motor cycles who emulated the Daimler Motor Co. and fitted an engine of the slide-valve type would speedily obtain a pre-eminent position, as practically all motor cyclists, in my opinion, would welcome a slide-valve engine, with its many and undoubted advantages over the other types.

SLIDE VALVE.

JARROTT CUP COMPETITION.

MOTOR Cycling Club members are reminded that entries for the above event close on Wednesday next, 16th inst. It is satisfactory to note that the minimum number of entries (six) required for the awarding of the special prize for the most meritorious performance on a lightweight machine (engine limit 340 c.c.), offered by Mr. Percy H. Trotman, were received by Monday last, and it is possible that three more will be sent in.

Harry G. Bell, who has made such a bold bid for the Jarrott Cup in the past two events, may be seen on one of the new 2¼ h.p. two-speed shaft-driven F.N.'s.

No fewer than five Douglas machines are entered.

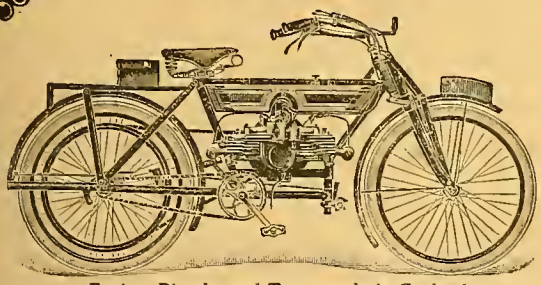
Among those who have entered are: Capt. Sir R. K. Arbuthnot, Bart., R.N., E. Gwynne, S. G. Frost (winner of the cup in 1908), L. A. Baddeley, Vivian Ollson, G. Brough, W. W. Douglas, and Stanley Webb.

Many members who are unable to spare the time to compete intend attending the combined opening run and Easter tour to Salisbury.

A30

RECOGNISING THE MAKE.

MOTOR cyclists are afflicted with a failing that used to characterise pedal-pushers in bygone years, viz., an irresistible desire to find out the make of machine used by other riders. At one time frame design revealed identity, but as the diamond-shaped frame became stereotyped the transfer or some other means of identification had to be sought. A similar curiosity prevails in motor cycle circles now. Nearly every rider tries to find out the names of machines he sees on the road, and the watcher's eyes search all over the machine for some distinctive mark. One of the easiest to recognise, even when in motion, is the N.S.U., which is identified quickly, if not by shape and other details, by the illustration of a stag's antler combining between the prongs the letters N.S.U. on the petrol and oil tank. No matter in what part of the country one may be, riders of the N.S.U. are sure to be met. The different models which will be seen on the road vary from the 1½ h.p. lightweight to the giant 8 h.p. twin.



Engine, Bicycle, and Tyres made in England.

1910 DOUGLAS

Price 38 Guineas.

FOR DOCTORS, CLERGYMEN, AND TRAVELLERS, THERE IS ONLY ONE MOTOR BICYCLE—THE

TWIN-CYLINDER Lightweight DOUGLAS,

January 29th,

in the 1910 A.C.U. Quarterly Trials.

Mr. P. Phillips,
Mr. G. L. Fletcher,
Mr. H. A. Cooper.

All succeeded in making Non-stop Runs.

Out of an entry of 67, only 15 riders made Non-stop Runs. The Douglas Motor Cycles were the only lightweights to do this. This proves the exceptionally arduous nature of the Trials.

DOUGLAS BROS., Kingswood, BRISTOL.

Or London Office: 336, Goswell Road, E.C.

A WORD ABOUT TYRES.

"The alternate Steel and Rubber studded Tyres."

Every cyclist knows that rubber studs on a tyre will check a skid when the roads on which they run are dry ; but when the surface becomes wet and heavy the rubber is of no avail, and metal studs are necessary to get the required "grip" for safety.

The Liversidge Motor Cycle Tyre is constructed with rows of alternate steel and rubber studs—studs that will not tear out, studs that will not skid on any surface. Unequalled for quality and long life.

Write for illustrated price list.

J. LIVERSIDGE & SON, LTD., 196, OLD STREET, E.C.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), on Tuesday morning previous to the date of issue.

When possible advertisements received at Coventry on the Wednesday will be inserted.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

No. 2161.—7 h.p. BAT, Mabon clutch, good tyres, stand, carrier, toolbag, good passenger machine; **£38.** Guaranteed.

No. 2206.—2¾ h.p. MINERVA, spring forks, B. and B. carburetter, handle-bar control, lamp, horn; **£12 10s.**; Guaranteed.

No. 2168.—2 h.p. 1909 Standard MOTO-REVE, new; **28 Gns.** Guaranteed.

No. 2183.—3½ h.p. 1908 Magneto QUADRANT, spring forks, footrests, Mabon clutch, good tyres, horn; **23 Gns.** Guaranteed.

No. 2185.—1¾ h.p. Magneto MOTOSACOCHE, 1909 model, Clincher tyres, usual spares, almost new; **£27 10s.** Guaranteed.

No. 2053.—3½ h.p. 1908 TRIUMPH-N.S.U., two-speed gear, F.R.S. lamp, horn, mirror, quantity of spares, excellent condition; **£35.** Guaranteed.

No. 2203.—7-9 h.p. 1909 Two-speed V.S., Whittle belt, in new condition; **£48.** Guaranteed.

No. 2024.—3½ h.p. 1909 MINERVA, Bosch magneto, spring fork, Continental tyres, horn, stand, carrier; **23 Gns.** Guaranteed.

No. 2040.—3½ h.p. ARNO, Roc two-speed gear, 1909 model, Rom tyre, stand, carrier, mirror, toolbag, etc., as new; **30 Gns.** Guaranteed.

A few left, 3½ h.p. new 1909 Standard REXES, complete with lamp, horn, etc.; **£35.**

No. 2000.—3½ h.p. PREMIER, 1909 model, W. and P. engine, Continental tyres, horn, mirror, toolbag, etc., as new; **29 Gns.** Guaranteed.

No. 2060.—3½ h.p. 1909 T.T. TRIUMPH, standard model, in excellent condition; **£32.** Guaranteed.

No. 2193.—5 h.p. NORTON, Druid forks, adjustable pulley, handle-bar control, Rom tyres, front and back stand; **£25.** Guaranteed.

No. 2043.—5 h.p. 1907 REX, magneto, J.A.P. carburetter, Clincher studded tyres, spring forks and seat; **15 Gns.** Guaranteed

No. 2046.—2¾ h.p. 1909 Magneto ARIEL, handle-bar control, spring forks, in new condition; **£22.** Guaranteed.

No. 2075.—3¼ h.p. 1910 Twin PREMIER, standard model, not ridden twenty miles; **42 Gns.** Guaranteed.

No. 2145.—3½ h.p. N.S.U., spring forks, staad, carrier, toolcase, etc.; **15 Gns.** Guaranteed.

No. 2157.—3½ h.p. 1907 TRIUMPH, Mabon clutch, Palmer tyres, spring seat, horn, toolbag, tools, etc.; **£27 10s.** Guaranteed.

No. 2169.—3½ h.p. 1909 Standard TRIUMPH, Clincher studded tyres, usual spares; **£35.** Guaranteed.

No. 2113.—2¾ h.p. 1909 DOUGLAS, standard model, stand, carrier, toolbag; **£24.** Guaranteed.

No. 2177.—3 h.p. KERRY, magneto ignition, h.-b. control, Rom tyres, spring forks, stand, carrier; **£17.** Guaranteed. At **Wauchope's.**

No. 1796.—1¾ h.p. MOTOSACOCHE, Clincher tyres, Druid forks, new condition; **16 Gns.** Guaranteed.

No. 2104.—3½ h.p. MATCHLESS, spring frame and forks, Rom tyre, magneto, J.A.P. engine, overhead valves, toolbag, horn, etc.; **£25.** Guaranteed.

No. 1996.—3½ h.p. 1909 Free Engine TRIUMPH, in new condition, **40 Gns.** Guaranteed.

No. 2077.—2½ h.p. 1908 Magneto Featherweight REX, Clincher tyres, unscratched; **£16.** Guaranteed.

No. 2019.—Four-cylinder F.N., Rom back tyre, Palmer front, h.-b. control, petrol gauge, horn, two toolbags, stand, carrier, etc.; **£20.** Guaranteed.

No. 1857.—3½ h.p. 1908 Two-speed Magneto BROWN, very good passenger machine; **20 Gns.** Guaranteed.

No. 2150.—4½ h.p. 1908 Twin MINERVA, with rigid sidecar; **£27 10s.** Guaranteed.

No. 2125.—5 h.p. 1907 Two-speed VINDEC, standard model, very good sidecar mount; **£28 10s.** Guaranteed.

No. 2150.—3½ h.p. 1909 TRIUMPH, standard model, as new, Clincher rubber-studded tyres, usual spares; **£37 10s.** Guaranteed.

No. 1899.—3½ h.p. 1908 BROWN, magneto, new tyres, enamel, plating, etc., very good; **19 Gns.** Guaranteed.

No. 1885.—1¾ h.p. Magneto F.N., spring forks, Englebert tyres, very good condition for a second-hand machine; **17 Gns.** Guaranteed.

No. 2088.—2 h.p. 1909 MOTO-REVE, Continental tyres, lamp, horn, toolbag, carrier; has not run 100 miles; **26 Gns.** Guaranteed.

No. 2145.—3½ h.p. Magneto N.S.U., spring forks, stand, carrier, toolcase, etc., good tyres; **16 Gns.** Guaranteed.

No. 2148.—2¾ h.p. MINERVA, spring fork, Palmer back tyre, Goodrich front, fitted with stand, carrier, pump, toolbag, etc.; **£16.** Guaranteed.

No. 2135.—1¾ h.p. N.S.U. Lightweight, magneto, good tyres, lamp, horn, toolbag, tools, spare tyre, etc.; **£17 10s.** Guaranteed.

No. 2127.—4 h.p. ANTOINE, good tyres, enamel, plating, etc., very good; **£14 10s.** Guaranteed.

Besides those quoted in this space, we can offer other good bargains. Do not fail to get our prices before definitely deciding. Recommended by all the leading makers for exchange business. Terms on application.

WAUCHOPE'S, 9, SHOE LANE, FLEET ST., LONDON, E.C.

'Phone, 5777 Holborn. Telegrams: "Opificer, London."

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or it "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days, and if no sale is effected, each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmoreland.

£8, bargain.—3½h.p. Excelsior, Brooks, Lithanode accumulator, tyres as new.—Particulars, Roney, Hirst, Morpeth.

V.S., two-speed, 5h.p. twin, perfect condition in every respect; seen any time; price 30 guineas.—Forster, Neville's Cross, Durham.

1909 3½h.p. Rex, magneto, very powerful, and splendid order; £25, or close offer.—Motorist, 217, Westmorland Rd., Newcastle-on-Tyne.

MUST Sell, 5h.p. twin Rex, magneto, twin tyre, spring forks, handle-bar control, Mabon clutch, new tyres; £15, or nearest offer.—64, Blenheim St., Newcastle-on-Tyne.

ZEDEL, 3h.p., splendid machine, just overhauled and enamelled for season; £14; photograph and particulars sent, or exchange higher power, condition no object.—Porthouse, 63, John St., Meryport.

WE Hold an entire stock of 1910 Rex motor cycles from the Speed King at £42 to the Sidette at £75; also the Rex valveless and the 3½h.p. plate clutch machine; immediate delivery from stock.—Kirsop, Murray, and Co., Ltd., 43, Pilgrim St., Newcastle-on-Tyne.

SECTION II.

York and Lancashire.

3½h.p. Quadrant, magneto, h.b. control; £22.—Wade, Longley Rd., Huddersfield.

£7 10s.—3h.p. Fafnir, Chater-Lea, h.b. control, bargain.—72, Walmsley St., Hull.

HUMBER, 3h.p., very good condition; £9, or nearest offer.—Birkhead, Holmfirth, Yorks.

CHAIN Drive Humber, just overhauled, French grey; nearest £13.—2, Freehold St., Hull.

TRIUMPH, 1909, lamp, horn, tools; £33.—Jeffries, Prince of Wales Hotel, Rotherham.

CROSS for Triumphs in Rotherham; 1910 and 1909 models in stock; £48 15s. and £43.

1909 Magneto Brown, Druids, new condition; £29.

1908 Twin Minerva, B. and B., magneto; £24.—Cross, Triumph agent, Rotherham.

ROVER, 3½h.p.; £9 10s.; all spares.—Powell, 2, Amos St., Church Lane, Harpurhey, Manchester.

TRIUMPH, 3h.p., magneto, h.b. control, spares, good condition; £18.—A. Pinder, Horsforth, Leeds.

1909 3½h.p. Rex, new, fitted with 1910 spring fork; £35 10s.—Motor Exchange, Westgate, Halifax.

LATE 1909 3½h.p. Rex de Luxe, new, two speeds, lamp, horn, spare valve; £38.—83, Birds Royd, Brighouse.

2½h.p. Cycle, good condition, 150 lbs.; take £8; worth £2 cheap.—No. 4,202, *The Motor Cycle* Offices, Coventry.

1909 3½h.p. Rex, special engine, almost new, and trial; £29 10s.—Motor Exchange, Westgate, Halifax.

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

TRIUMPH (July, 1909), 3½h.p., ridden only 500 miles, first-class condition; £35, no offers.—4,245, *The Motor Cycle* Offices, Coventry.

PEUGEOT Twin, 4h.p., Bosch magneto, Chater-Lea frame, Palmer tyres, handle-bar control; £17 10s. 2, Bull Ring, Birmingham.

1h.p. Minerva, new 1908, in perfect condition, 2½in. 2 tyres, two accumulators, had very little use; £25.—son, East Bond St., Leicester.

TRIUMPH, 1909, nearly new, in perfect condition, Shamrock studded tyres, unpunctured several spares; cash.—Geo. Sharman, Brackley.

3½h.p. Minerva, 1908, new Clincher tyre, spare belt, perfect order; any trial; owner bought car; £18.—awkins, Fletton, Peterborough.

10 Humber, Premier, and Ariel motor cycles; immediate delivery; exchanges wanted.—P. J. ns, agent, Sparkhill, Birmingham.

TRIUMPH, Rex, Minerva, Excelsior motors, new and second-hand; send for weekly list.—The Victoria age and Electrical Co., Ltd., Coventry.

DOUGLAS, 1910 models, in stock, complete with lamp horn, and accessories; 38 guineas.—Norton and s, ironmongers, Smithford St., Coventry.

QUADRANT, 3h.p. vertical engine, Dunlop studded tyres, spring forks, very low, perfect order; bargain, £13 10s.—12, Bull Ring, Birmingham.

CHASE, 5-6h.p. twin engine, Palmer tyres, Bosch magneto, handle-bar control, enamelled French ; £19 10s.—12, Bull Ring, Birmingham.

p. Twin Rex, 1906, very fast, good condition, also R.O.M. synchronised, as new, and Amac carbur-r; £13 the lot.—25, Chester St., Coventry.

OC, 4h.p., magneto, Amac carburetter, h.b.c., adjustable pulley, free engine, handle starting; £24, cheap. evenson, Edgbaston House, Broad St., Birmingham.

N., 1909, 5-6h.p., handle-bar control, footrests, carrier, etc., only wants seeing; price £33 or offer for cash.—Holroyd, Warwick Av., Coventry.

15, or nearest offer.—3½h.p. Brown, handle-bar control, same tyres and belt, practically no wear.—W.T., The ars, Boldmere Rd., Wylde Green, near Birmingham.

OYL, F.N., 1909, equal to new, h.b. control, spring seat-pillar, mirror, watch, lamp, horn, tools, and es; £28; buying car.—164, Coventry Rd., Hay Mills.

10 3½h.p. Twin Premier, brand new; cost 50 guineas, will accept 46 guineas; reason for selling, owner g abroad.—No. 4,238, *The Motor Cycle* Offices, Covy.

EASTER Holidays.—New 1910 Triumph, special tyres, £48; or new 1910 Douglas, special tyres and dle, £39.—Box 4,236, *The Motor Cycle* Offices, Covy.

3h.p. Minerva, late 1909, R.O.M. combination tyre, Powell two-speed and free-engine hub in back el, handle-bar control; £40.—Gibson, East Bond St., Lester.

1909 Rex de Luxe, 3½h.p., with Roc two-speed, will take sidecar anywhere; went through all non-stop ts without mishap; £36.—94, Alcombe Rd., Northton.

h.p. Clement-Garrard Engine, as good as new, with Dunlop, carburetter, and silencer; no reasonable o refused.—S. Gibson, Woodside, Wake Green, Moseley, Birmingham.

1909 Triumph, free engine, new in June, rubber studded tyres, not punctured, complete with accesies; £45, no offers.—Box 4,230, *The Motor Cycle* Offices Coventry

DOUGLAS, 1910, Brooks B105/4 padded saddle, spare tube, lamp, and separate generator, complete with s and all accessories; £36.—Waterlow, The Gables, St Nicholas St., Coventry.

p. Triumph, h.b. control, new, cylinder, piston, bearings throughout, tyres, tank re-enamelled and ed December, 1909, guaranteed perfect; £28; getting -119, Bristol Rd., Edgbaston.

MOTOSACOCHE, 1½h.p., new June, 1909, not ridden 100 miles, spare belt, new lamp, unpuncturable s, tyres perfect, spring fork, accumulator; price £ —Jervis, Norton Disney, Newark.

N.S.U., 3½h.p., 1908, magneto, new piston and cylinder, bristles with improvements, ride reasonable nce to meet bona fide buyer; price £22.—For full pa ulars write Williams, 87, Monks Rd., Lincoln.

h.p. Triumph, handle-bar control, variable pulley, 1909 carburetter, Shamrock-Gloria belt new, er cord back practically new, Dunlop front, all ssories, condition perfect, engine recently overhauled; £ —Taylor, Bagthorpe Infirmary, Nottingham.

COMFORT, Cleanliness, Reliability are proven merits embodied in C.C.R. motor cycles, made by clever, riders of long experience; exchanges; trials arged.—C.C.R. Motor Works, Ford St., St. Ann's Well R , Nottingham.

LARGE Stock of second-hand motor cycles and tricars, all makes cheap to clear; approval.—C.C.R. Motor Wks, address above.

TRIUMPH, 1908, in excellent order, plating, enamel as new, Shamrock-Excelsior studded tyres unsched lamp and generator, horn, two Riches spare ar tubes, spare belt in case, etc., every part of ine guaranteed in perfect condition; the best offer ov £32 secures this.—Hulbert, Weston-in-Arden, Nuneat.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

Phone, 766. Telegrams: "Perfection."

LIGHTWEIGHTS.

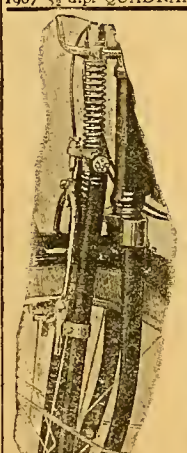
1908 1½ h.p. MOTOSACOCHE, belt drive, goes well	£19 19
1908 2 h.p. MOTO-REVE, magneto, V belt ..	£22 10
2 h.p. MINERVA, spray, good climber	£6 0
CLEMENT GARRARD, twin, spring forks	£9 15

SIDECAR MACHINES.

1909 Two-speed Twin REX DE LUXE	£39 0
1909 5 h.p. TWIN REX, nearly new.....	£32 10
1908 Twin Tourist REX, magneto	£26 10
4-cylinder F.N., magneto, spring forks	£19 10
6 h.p. N.S.U., magneto, spring forks	£24 10
5 h.p. Twin SAROLEA, excellent order	£14 14
6 h.p. Twin ANTOINE, extra good, R.O.M.	£18 10
4½ h.p. Twin MINERVA, very good order.....	£16 10

"P PULARS."

3½ h.p. brand new TRIUMPH Magneto.....	£43 10
1909½ 3½ h.p. HUMBER, brand new.....	£34 10
1909 3½ h.p. Magneto REX, nearly new	£29 10
1909½ 3½ h.p. REX Speed King, as new	£35 0
1909 special 3½ h.p. Competition REX	£32 10
1908 3½ h.p. Magneto REX, special machine ...	£24 10
1908 Two-speed P. & M.	£31 0
3½ h.p. Magneto QUADRANT, spring forks....	£24 8
4 h.p. ANTOINE, high tension magneto	£18 10
3 h.p. Magneto SIMMS, 2¼in. Palmers	£16 10
1908 3½ h.p. Magneto MINERVA.....	£24 10
3 h.p. SINGER, V belt, h.t. magneto	£16 10
1907 3½ h.p. QUADRANT, spring forks.....	£16 10



1910 "HALIFAX" Spring Fork.

Stocked to suit all Rex Models, and will be found a marvellous improvement to machines with the old style spring fork, and allow a front brake to be fitted if desired.

Price for a short time to popularise

39/6

Old forks taken in part payment.

SPECIAL CASH BARGAINS.

3 h.p. BRADBURY, long and low	£10 0
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. STEVENS, h.b. control, band brake	£13 10
3 h.p. CLYDE, magneto ignition	£14 10
2¾ h.p. KERRY, light and low, spray	£9 10
3¼ h.p. REX, 22 frame, re-enamelled, tumbler ..	£7 10
3 h.p. BEESTON-HUMBER, spray	£8 10
3½ h.p. WERNER, used with passenger	£13 10
2½ h.p. Light ARIEL, low build, 26in. wheels	£8 15
2 h.p. F.N. SAROLEA wants adjustments.....	£4 5
3½ h.p. EXCELSIOR, h.b. control	£6 0
2¾ h.p. MINERVA, goes well, reliable	£4 19
3 h.p. Humber, splendid climber.....	£5 10

Monster list on application. Cash offer considered.

£5 ALLOWED FOR GOOD PUSH CYCLE AGAINST ANY OF THESE MACHINES.

2¾ h.p. Bradbury ..	£10 0	2¾ h.p. Kerry ..	£9 10
3 h.p. Clyde	£15 0	2½ h.p. Ariel ..	£9 13
3 h.p. Ariel	£10 0	3½ h.p. Werner	£13 10
3 h.p. Humber ..	£10 0	2¾ h.p. M.M.C.	£9 10
3¼ h.p. Rex	£10 10	2 h.p. Humber	£8 10
3½ h.p. Rover	£14 0	3 h.p. Bradbury	£10 10
2¾ h.p. Minerva	£9 10	3½ h.p. Excelsior	£9 10

1909 REXES 1909

Brand New and fully guaranteed.

1909 3½ h.p. Tourist REX	£3
1909 3½ h.p. REX DE LUXE, two-speed	£4
1909 5 h.p. REX DE LUXE, two-speed.....	£4

The 5 h.p. Twin de Luxe (two speeds and free engine) is the best passenger mount on the market. No thumping and overheating on hills. Change your willing but under-powered single for one of these, and give your passenger a pleasant ride instead of walking exercise.

MOTOR BICYCLES FOR SALE.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

3½h.p. Bat, spring frame; £12.—Lugar, Fornham Rd., Bury St. Edmunds.

1908 Brown, 3h.p., Eadie frame and fittings, perfect condition; £14.—Mason, Setch Brewery, King's Lynn.

4½h.p. F.N., new 1908, handle-bar control, good order, lamp, horn, spares, etc.; £25.—Box 4,244, *The Motor Cycle* Offices, Coventry.

5h.p. Twin Rex, accumulator ignition, adjustable pulley, good tyres, h.b. control; £12, offers.—Watson, Park Terrace, Cambridge.

MOTO-REVE, 1909, good condition, all accessories, spares, must sell; first cheque over £20 secures.—Motorist, 1, Fair St., Cambridge.

£14.—Excelsior-M.M.C., 2¾h.p., one of the most reliable machines going, low position, complete.—Write particulars, Benhall Estate Office, Saxmundham.

WHAT Make Motor Bicycle do you fancy? We can supply and give early deliveries. We have actually in stock new Triumphs, Premiers, and Bradburys, cash or instalments.—Parker and Son, St. Ives, Hunts.

3½h.p. Rex, converted, cylinder reground, new piston rings, long handle-bars, footboards, tool box, good running order; £8.—A. Matthews, Dalton Rd., Lowestoft.

1909 Humber, two-speed, B. and B. carburetter, just fitted with latest two-speed control, Druid spring forks, and extra wide pulley by Humbers, lamp, tools, spare tube, little used; owner having car; £38.—Box L1,088, *The Motor Cycle* Offices, 20, Tudor St., E.C.

TRIUMPH, bargain, 3½h.p., direct from works August 1909, scarce ridden unpunctured and unscratched plating quite perfect, everything complete, spares, accessories, etc.; want cash; £40: seen by appointment.—4,247, *The Motor Cycle* Offices, Coventry.

N.S.U. Lightweight, magneto, nearly new, £15; 3½h.p. Triumph, £26; 3½h.p. twin Peugeot, £15; Motosacoche, £14; 2½h.p. lightweight, Humber engine, B. and B., 1910, very low and fast, £13; 5h.p. twin Vindec, two-speed, £30.—T. Cox, St. Andrew's Hill, Cambridge.

VINDEC SPECIAL, 5h.p., twin, magneto, two-speed, free engine in back hub, pedal starting, 2¼in. Palmer cord on back, spring fork, Whittle belt, in perfect condition, engine and gear extra good; £29; would take 1907 Triumph part exchange.—Cox, St. Andrew's Hill, Cambridge

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

MOTOSACOCHE for sale; £20, near offer.—Head, 30, High St., Newport, Mon.

PREMIER 3½h.p. Twin, 1910 model, also Moto-Reve.—Stour Cycle Depot, Stourbridge.

TRIUMPHS two 1909 models, good condition; £36 and £38.—Withers, High St., Stourbridge.

3h.p. Clyde, low, magneto, free engine, new back tyre; real bargain, £10.—James, 39, Cromwell St., Swansea.

CHARM the Salesman ever so wisely—Don't buy a belt or chain-driven machine. They are likely to become obsolete, but the 2¾h.p. two-speed free engine lightweight F.N. abides for ever.—Heath, Salford Priors, Evesham, delivers immediately.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

BRADBURY, 1910 models, and exchanges.

BRADBURY, the rigid machine.

BRADBURY, the well balanced engine.—Sole agents for N.W. London, Gardner, 6a, High St., Hampstead.

DOUGLAS, 1909, only ridden 700 miles, guaranteed perfect; £30.—Campbell, Post Office, Boscombe.

4h.p. Twin Kerry, little used, splendid condition; £17 cash.—Hunt, Queen's Rd., Farnborough, Hants.

TRIUMPHS, 1910, delivery from stock; second-hand Triumphs taken in part payment.—Laytons, Bicester.

3½h.p. Quadrant, 1907, perfect order, new tyres; bargain, £13 10s.—Green, Stoke Park, Westbury, Bristol.

EYLES and Eyles, opposite Town Hall, Oxford.—1910 Premier motor cycles, twins and singles, in stock; £47 10s.

2½h.p. Ariel, surface, in perfect going order; £5 15s.; smart low machine.—R. G. Judd, Cocum, Barton-Stacey, Hants.

3½h.p. Minerva, in perfect condition, accumulator ignition, lamp, good tyres, climb anything; bargain.—Halfpenny, Sunningdale.

MOTOR BICYCLES FOR SALE.

ONE New 1909 F.N., 5-6h.p., Cowey's speedometer, Brooks spring seat, two studded tyres; what offers?—See below.

ONE New 1909 Triumph, 3½h.p.—See below.

ONE Second-hand 3½h.p. Quadrant, magneto, Brooks spring seat, spring forks, in grand condition; £20. —See below.

ONE 3½h.p. Minerva, accumulator, B.S.A. frame, 28in. wheels, stand-carrier, tyres, good condition; £13 or near offer.—Randall, High St., Andover.

3½h.p. Ariel, splendid hill-climber, Stanley-Dermatine belt; for quick sale accept £10 10s.; worth double. —Isaacs, 170, High St., Slough.

3½h.p. Minerva, only done 400, 1908, square tank, spring forks, guaranteed, condition as new; price £16, or near offer.—Partington, Slough.

TRIUMPH, 1908 (delivered November), little used, splendid condition, lamp, horn, magneto cover, accessories; £30, no offers.—Paxman, Tewkesbury.

ROC, 1908, two-speed, magneto, as new, R.O.M. studded and Palmer tyres, good sidecar machine; sacrifice £20; owner bought car.—Seymour Hotel, Gloucester.

DOUGLAS, 1909 model, as new, just been replated and enamelled and overhauled by makers, new Palmer tyres and tubes; £32 10s.—129, Alma Rd., Bournemouth.

3½h.p. Brown, magneto, Brown and Barlow carburetter handle-bar control, Palmer tyres, cord back, both as new, excellent running order; £20.—Lonnen, Parsonage, Fordingbridge.

ROC, 4h.p., military model, two-speed gear, free engine, magneto Amac h.b. control, lamp, horn, carrier, toolbag, new belt; £20; bought new one.—Freeman 151, Barton St., Gloucester.

5½h.p. Rex de Luxe, new Palmer cord back, new Michelin front, Whittle, h.b.c., new pistons, freshly enamelled, accumulator ignition, footboards; £20, or exchange for good lightweight.—Morriss, 395, Oxford Rd. Reading

3½h.p. Rex, low built, been well kept by motor engineer, new back rubber studded tyre, new Continental belt, footboards, and foot pedal for throttle carrier, spare cover, and dry cell; £12.—Farrar, Clevedon, Essex Rd., Basingstoke.

6h.p. N.S.U., bought 1909, not run 800 miles, spring forks, Bosch magneto, Roc two-speed gear, handle starting, spares, Lomas non-skid, detachable, Whittle belt, tubes, and valves, all new; £35.—Poole, fish salesman, High St., Cheltenham.

1909 4½h.p. F.N., 4-cyl., run 1,000 miles only, new condition, fited 1910 carburetter and inlets, adjustable footrests, brand new tyres, R.O.M. back; cost owner £60; any trial or examination; an absolute gift, £30, no offers.—A. Ward, Homa Farm, Ascot.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

£6.—2½h.p., long bars, Palmers, as new.—75, Belmont St., Kentish Town.

2½h.p. Kerry, Palmers, girder forks, 8 guineas.—24, Knighton Rd., Forest Gate.

5h.p. Rex, spring forks, Amac, Whittle, perfect; £15. —74, Croydon Rd., Beckenham.

3½h.p. Twin Peugeot, spring forks; bargain, £16.—65, Arcadian Gardens, Wood Green.

2¾h.p. De Dion, as new, Clincher covers, Amac h.b control; £13 10s.—See below.

2¾h.p. Kerry, fine order; £9 15s.—See below.

7-9h.p. Record, powerful, this machine in fine order; £30.—Radium, 336, Grays Inn Rd., W.C.

TRIUMPH, 3½h.p., good condition; accept £23 quick sale.—J. Lewington, Enfield Wash, N.

TRIUMPH, 1908-9, in splendid condition; £32, or offer.—38, Romilly Rd., Finsbury Park.

MINERVA, 1¾h.p., B.S.A., perfect running order; £8, offer.—74, Seymour St., Euston Rd.

REX, 3½h.p., good order; best offer over £10.—Seen at Anglo-Saxon, 31, Newgate St., E.C.

MOTOSACOCHE; seen by appointment; £14, quick sale.—White Lodge, 209, Brixton Hill.

3½h.p. Minerva, splendid condition; £14. — G., 69, Three Mill Lane, Bromley, Bow, E.

Y.M.C.E.—5h.p. twin Rex, magneto, Rex two-speed, equal to new; lowest cash, £28.

Y.M.C.E.—2h.p. lightweight, going order; £5, or push cycle and £3 10s.

YATES' Motor Cycle Exchange, Cavendish Place, Eastbourne, agents for Rexes; send for particulars of 1910 models from £42.

2¾h.p. Kerry, low built, splendid goer; to clear £7 15s.—128, High Rd., Tottenham.

TRIUMPH, 1910, delivery now from stock; £48 15s. —Rusticana 523, High Rd., Chiswick.

£17.—3½h.p. Phœnix, two-speed gear, chain drive.—Adams, School House, Rusper, Horsham.

The House of Satisfaction

FARRAR'S HALIFAX SIDECARS.

£4 7s 6d. complete with best tyres. Guaranteed 12 months. An ideal winter attachment, quite rigid Good, stylish, and comfortable. No side-slip. Beautifully sprung on double C springs. Approval anywhere. Send for descriptive circular. Don't buy until you have seen ours.

SIDECAR MACHINES.

1909 5 h.p. Twin REX, fine machine	£32 0
5 h.p. Twin REX, Roc 2 speeds	£22 0
1909½ Twin REX Racer, lovely goer	£35 0
1909½ 3½ h.p. REX Racer, soiled only	£32 10
1908 Twin REX, magneto, h.b. control ..	£26 0
5 h.p. Twin REX, spring forks, 26" wheels	£16 10

Any of the above fitted with one of our new Sidecars for £4 17s. 6d. extra.

SOLO MOUNTS.

3 h.p. VINDEC, Bosch magneto	£16 0
3 h.p. VINDEC, magneto, H.B. control....	£18 0
3½ h.p. MINERVA, magneto, spring forks, lovely machine, perfect	£22 10
1910 3½ h.p. REX, slightly soiled. Offers wanted.	
1910 3½ h.p. PREMIER, twin-cylinder	50 Gns.
1909 REX SPEED KING, 3½ h.p.	£32 0
1909 3½ h.p. REX, R.O.M. tyres	£30 0
1908 3½ h.p. REX, almost like new	£22 0
1908 3¾ h.p. GRITZNER, mag., free engine	£18 0
1908 REX Lightweight, fine condition	£17 0
1907 3½ h.p. REX, lovely goer, very smart	£15 15
3½ h.p. N.S.U. magneto ignition.....	£15 0
3½ h.p. REX, M.O.V. spray	£10 10
3½ h.p. 1906 REX, M.O.V., spring forks ..	£14 0
3½ h.p. REX, Bosch magneto, fine goer....	£16 0
Brand new 1909 Twin REX DE LUXE....	£48 0
Brand new Twin REX Tourist.....	£37 0
Brand new 3½ h.p. REX Tourist.....	£35 0

LIGHTWEIGHTS.

1908 N.S.U. Lightweight, Bosch magneto ..	£17 0
1909 MOTOSACOCHE, soiled only	£24 0
1908 REX Featherweight, magneto	£18 0
Twin-cylinder FAIRY, very smart.....	£14 0

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Rex ..... £9 | 2¾ h.p. Stevens £7
3½ h.p. Rex, M.O.V. £10 | 2¾ h.p. Orient £6

£5 down SECURES ANY OF THESE. BALANCE 5/- PER WEEK.

3 h.p. Vindec, mag. £16 | Twin Fairy £14
3½ h.p. Rex, mag. ... £16 | 3½ h.p. 1906 Rex.. £14

BRAND NEW 1909
5½ h.p. O.T.A.V. VOITURETTES,

complete with hood, lamps, tools, and spares, £60 each. Magneto Ignition £5 extra.

Very fine 5½ h.p. REXETTE TRICAR, spring frame, water-cooled, two speeds £24 0

MISCELLANEOUS BARGAINS.

6 h.p. Water-cooled Engine, brand new....	£8 0
2-speed Gear Box, new, unused	£3 0
8 h.p. Twin Rexette Engine, two speeds ..	£12 0
5 h.p. Twin Standard Engine	£4 0
	s. d.
Few Air-cooled Cylinders .....each	12 6
Montgomery flexible sidecar.....	80 0
Clincher Rubber-studded Covers, 26 x 2¼....	29 0
28 x 2 or 2¼ Dunlop Wired Covers.....	11 6
"Camel" V Belting, ¾in. or 1in., per foot....	1 8
Latest pattern Plated Handle-bars, drop ends	5 6
Three-note "Fanfare" Horns, very penetrating	7 6
Clincher Tubes, all sizes, with valves.....	4 11
1910 B. and B. Carburetters, h.b. control....	28 0
1909 Amac Carburetters, h.b. control	19 6
Forecar Attachment, 26in. wheels.....	80 0
Premier High-tension Magneto, new.....	59 6
Loop Frame for vertical engine	30 0

Big stock Quadrant Spare Parts.

Get our Price List. Remember we are the cheapest firm alive. 'Small profits and quick returns' is our motto. High-class machines wanted. Cash waiting.

Farrar's Motor Works,
Square Road, HALIFAX.
Telephone 919.

MOTOR BICYCLES FOR SALE.

WILTON.—Twin Minervas, 4½h.p., good tyres, acc sories; £18 ea

WILTON.—2¾h.p. Minerva, ditto; £9

WILTON.—2¾h.p. Ariel, ditto; £8.

WILTON.—3½h.p. Rex; £9.

WILTON.—Tricar frame, wheels, and steering. £ 5h.p. water-cooled Aster engine, with clutch. 10s.; 2¾h.p. De Dion engine, water-cooled head £2 10 De Dion trike frame and wheels. £1.—Wilton Cycle C 110, Wilton Rd., Victoria Station, S.W.

HAMPSTEAD.—Premier, 1910, twin, as new, all cessories; great bargain, £42 only.

HAMPSTEAD.—3h.p. Chase, £12; good condition, accessories; bargain.

HAMPSTEAD.—Bat twin, free engine, good order, accessories; £22, special bargain.

HAMPSTEAD.—Triumph, 1910, from stock; no wa ing; easy payments taken, 5 per cent. extra.

HAMPSTEAD.—Douglas, 1909, twin, magneto a spring forks, splendid condition; £25, bargain.

HAMPSTEAD.—Douglas, 1910, latest model, fro stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—Rex, 3½h.p., tourist, 1910, late model, only run few miles; £39 10s.

HAMPSTEAD.—F.N., 4½h.p., late model, splendid co dition, all accessories; £22, special bargain.

HAMPSTEAD.—F.N., 4½h.p., latest model, hand bar control, condition splendid, with accessorie £24.

HAMPSTEAD.—F.N., 6h.p., late 1909, 2½ tyr R.O.M., splendid condition; £29, cost £51.

HAMPSTEAD.—Ariel, 3½h.p., good condition, all a cessories, new Palmer tyre; bargain, £10.

HAMPSTEAD.—Sidecar, best make, brand new, a justable to any machine; £3 15s.

HAMPSTEAD.—Lincoln Elk, latest, 1909, 3h.p., aple did condition, with all accessories; £18.

HAMPSTEAD.—Minerva, 3½h.p., late 1909, magne and spring forks, handle-bar control; £25.

HAMPSTEAD.—Pengeot, 7-9h.p., 1909, very low, co dition like new; cost £60, take £27.

HAMPSTEAD.—£5 upwards allowed on cycles in pa payment for new motor cycles.

HAMPSTEAD.—Sole London Agents for Linco Elks, all models in stock; no waiting.

HAMPSTEAD.—Moto-Reve, latest 1909 model, sho soiled condition; special bargain, with accessori £25.

HAMPSTEAD.—Moto-Reve, new condition, 1909, a cessories, spring fork, magneto; special bargain, £2

HAMPSTEAD.—Moto-Reve, 1908, twin, magne and spring forks, all accessories; £17

HAMPSTEAD for latest 1910 models, in stock (T umphs, Indian), Premier, Douglas, Rexs, Humb etc.; exchanges or gradual payments.—Bey, 5, Heath Tel.: 2678 P.O., Hampstead.

GRIFFON, 6h.p., twin, perfect running condition £16.—Gardner, 45, Seward Rd., Hanwell.

3h.p. Quadrant, very good order, spring forks; £ 10s.—Leighton, Mottingham, Eltham, S.E.

3h.p. Brown Motor Cycle, in splendid condition; 10s.—Apply, 163, Forest Lane, Forest Gate, E.

4-Cyl. F.N., 5-6h.p., new last August, condition as ne £35.—H.E., 1, Little Elm Place, Fulham Rd., S.

WHITTLE'S.—F.N., 4½-5h.p., 4-cyl., magneto, h.b. co trol, spring forks, nearly new, unscratched; £2

WHITTLE'S.—Fairy, 6-8h.p., twin, Chater-Lea No. frame, spring forks, very fast, beautiful orde £18 18s.

WHITTLE'S.—Minerva, 4½h.p., twin, M.O.V., spri forks, long bars, good condition; £16 16s.

WHITTLE'S.—F.N., 4½h.p., 4-cyl., late model, ma neto, spring forks, like new; £25.

WHITTLE'S.—Humber, 3½h.p., spring forks, goo £7 15s.; exchanges entertained.—Whittle's, Lt Motor Exchange, Earlsfield. 'Phone, 711, Post, Wimbl don.

3h.p. Humber, free engine, chain drive, Dunlops, perfe condition, reliable; £8, offers.—1, Ivy Lane, Broc ley.

4h.p. Roc, magneto, clutch, h.b. control, 1907, new co dition; offers.—Paradise, 129, Orchard Rd., Plur stead.

3½h.p. Rex, December, 1908, perfect condition, 19 handle-bar, B.B.; £23.—56, Riverview Grove, Chi wick.

1909 Lincoln Elk, 3½h.p., magneto, all latest improv ments; £22, or offer.—38, Romilly Rd., Finsbu Park.

KERRY, new 1910 models; delivery from stock; ea payments, or exchange.—Anglo-Saxon, 31, Newga St., E.C.

£8.—Minerva, 2h.p., Chater-Lea, low, engine as ne Palmer cords, splendid hill-climber.—11, Argyle R Ealing.

THE MOTOR CYCLE SUPPLEMENT

INTER-TEAM TRIAL AT EASTER.

THE rules for the inter-team reliability trial, London-Harrogate and back, at Easter, between the Herts County A.C. and the North-west London M.C.C., are now complete. The start is from the Gatehouse, Highgate, at 7 a.m. sharp on Friday, the 25th inst. Competitors must report themselves in readiness by 6.30 a.m., and will be started at intervals of one minute. The route will be *viâ* Hatfield, Welwyn, Baldock, Biggleswade (check), Grantham (check), Newark, Doncaster (check), Wetherby, and Harrogate (check), returning by the same route. The maximum number of marks obtainable will be 200—100 for each half of the journey. A mark will be deducted for every minute under or over the schedule time.

The awards are: *(a)* Team prize, the Service Cup; *(b)* return journey, 80% of total marks, replica silver cups; *(c)* return journey, 70% of total marks, silver medals; *(d)* return journey, 50% of total marks, bronze medals.

On Saturday, the 26th inst., there will be an inter-club hill-climb with the Harrogate and District M.C.C., North *v.* South, at Sutton Bank, at 2 p.m., for which six classes have been arranged:

(1.) Lightweights weighing not more than 120 lbs. in touring equipment. Pedalling allowed in this class only.

(2.) Single-cylinder touring machines with fixed gears.

(3.) Multi-cylinders; same as Class 2.

(4.) Variable geared machines with single or multi-cylinder engines.

(5.) Passenger motor cycles.

The results in the above classes will be decided on A.C.U. formula.

(6.) For machines of any power; fastest time to win.

There will be a social evening at the Clarendon Hotel, Harrogate, on the 26th inst., and a run to Ripon next day.

B.M.C.R.C. MEETING AT BROOKLANDS.

THE first members' meeting of the B.M.C.R.C. will take place at Brooklands on Wednesday next, 16th inst. The first event in the afternoon will be the All-comers' Handicap, which will start at 2.30 p.m. It is open to all classes of motor cycles the cubical capacity of the engines of which does not exceed 1,000 c.c. Distance 5½ miles. First prize, the club's gold medal; second prize, the club's silver medal; third prize, the club's bronze medal. Starters are allowed. If engines are fitted with auxiliary exhaust ports, whether covered or not, this fact must be stated on the entry forms.

The following entries had been received up to 6 p.m. on Friday last:

2.30 p.m. All Comers' Handicap.

C. E. Bennett (Indian, twin)	D. R. Clarke (Indian, twin)
W. O. Bentley (Indian, twin)	G. Lee Evans (Indian, single)
H. H. Bowen (Bat-J.A.P., single)	A. G. Fenn (Triumph)
H. V. Colver (Matchless, twin)	G. L. Fletcher (Douglas)
H. Lister Cooper (Triumph)	E. Gwynne (Triumph)
W. Chitty (Uxbridge, single)	F. A. McNab (Trump)
	A. C. Maitland (Trump)
	H. Martin (Martin)

The One Hour T.T. Race, which should be a particularly interesting event, is open to machines complying with the 1910 T.T. conditions, except that purely touring accessories, such as mudguards or horns, may be removed. First prize, silver cup presented by Mr. W. H. Wells; second prize, club's gold medal; third prize, club's silver medal. Starters allowed. The entry fee for the first event will be 2s. 6d., and for the second 5s., entry fees for the two events 6s. 6d.

3.15 p.m. One Hour Tourist Trophy Race.

C. E. Bennett (Indian, twin)	D. R. Clarke (Indian, twin)
W. O. Bentley (Indian, twin)	G. Lee Evans (Indian, twin)
H. H. Bowen (Bat-J.A.P., single)	A. G. Fenn (Triumph)
C. R. Collier (Matchless, twin)	E. Gwynne (Triumph)
H. Lister Cooper (Triumph)	W. Lamm (V.S.)
	F. A. McNab (Trump)
	A. C. Maitland (Trump)

All machines must be fitted with round disc number-plates as approved by the committee, which are obtainable, price 3s. 6d. per pair, from the honorary secretary, Mr. T. W. Loughborough, A.M.I.A.E., Ashleigh House, Erith, Kent. At 4.30 p.m. the prizes and a large number of 1909 certificates will be distributed by H.S.H. Prince Francis of Teck, K.C.V.O., D.S.O. Tea will be served in the club house from 4.30 to 6 p.m.

AUTO CYCLE UNION (NORTHERN CENTRE).

The annual general meeting of the committee of the above centre was held at the County Hotel, Newcastle, on Wednesday last. Amongst other things the hon. secretary, Mr. E. L. Bates, reported that there had been four meetings of the Centre Committee during 1909, but that only one competition, namely, the hill-climb at Ragpath Side, had been organised which had been a very great success. The revenue of the centre showed a balance over the expenditure, and as the centre was now in good working order a more active programme could be arranged for 1910. There was a great deal of business before the meeting, and amongst other things the inter-club efficiency trial had to stand over for a future meeting. The results of the hill-climb at Ragpath Side previously reported were confirmed, and gold and silver medals were awarded to Mr. T. Smith and Mr. R. Ellis respectively in the single-cylinder class, and gold and silver medals to Mr. C. Reinhart and Mr. H. Mason respectively in the multi-cylinder class.

BROOKLANDS HILL-CLIMBING CERTIFICATES.

In the Correspondence pages a reader refers this week to the above hill-climbing certificates, which, by the way, were inaugurated owing to the representations of Mr. W. G. Bower, of Zenith Motors, Ltd. The suggestion our correspondent makes, that the gear ratio or ratios of each machine at the time of climbing the hill should be noted on the certificate, is an excellent one which may be adopted.

PRACTISING ON THE TRACK.

During the last few days a number of well-known motor cyclists have been practising on Brooklands Track in view of forthcoming events. Two strangers to the track seen on Thursday were J. Marshall and W. F. Newsome, riding Tourist Trophy Triumphs. Their special duty was testing fittings in general and exhaust valves in particular, but not in readiness for Brooklands races unfortunately. On Thursday H. Martin was due to attempt records on a twin A.S.L., but for various reasons he postponed his attempt.

A Motor Cyclist on a Balloon Expedition.

Mr. W. H. M. Pattisson, of Helmingham, Suffolk, is one of the promoters in the *Daily Graphic* long-distance balloon expedition, which will start on Thursday next if there is a west wind to carry the balloon across Europe. The object of the aeronauts is to beat the world's long distance record now held by Count de la Vaulx, and standing at 1,190 miles. In the photograph Mr. Pattisson is wearing a Jaeger coat and the cap which he is taking on the expedition, and he mentions that it is a most excellent coat for winter motor cycling. Inside it is lined with camel-hair, and covered with a waterproof material, making it very warm, but light withal. Mr. Pattisson has been a keen motor cyclist for the last four years, and favours a Triumph. He enjoys the distinction of never yet having been stopped on the road from any mechanical trouble.

W. H. M. Pattisson, one of the promoters in the *Daily Graphic* Long-distance Balloon Expedition.

Police Trap.

A ten mile speed limit is now in force in Great Missenden, and motor cyclists should be careful to observe this when passing through the village.

Illegal Speed Limit Signs.

The attention of all motorists who pass through Ashton-under-Lyne is drawn to the speed limit signs which have been erected at certain prominent positions on the main roads entering the town. These signs have been erected by the Town Council, without the sanction of the Local Government Board. Although stating that there is a ten mile limit, motorists are under no legal obligation to observe them, as no prosecution can legally take place under this limit notice.

North-eastern Automobile Association.

At a general meeting of the Motor Cyclist Section of the North Eastern Automobile Association at the County Hotel, Newcastle-on-Tyne, Mr. Isaac Baty was appointed chairman, and Mr. E. L. Bates vice-chairman for the ensuing year. Both are members of the Newcastle and District M.C.C., and the appointments are an honour to the club, as it is the first meeting at which the club could take any part since its affiliation to the N.E.A.A.

Imports of Motor Cycles.

There was a substantial increase in the value of foreign motor cycles and parts imported last month. The February figures for the last three years were :

1908.	1909.	1910.
Value of motor cycles imported—		
£3,783	£2,593	£2,161
Parts thereof—		
£1,060	£1,988	£4,187
£4,843	£4,581	£6,348

The figures during the two months ended February were :

Value of motor cycles imported—		
£9,907	£3,222	£5,837
Parts thereof—		
£1,671	£4,172	£8,075
£11,578	£7,394	£13,912

Exports of British-made Motor Cycles.

British exports likewise show a considerable increase, the Board of Trade returns for February, and the total for the two months, showing record figures. February exports were represented as follows :

1908.	1909.	1910.
Motor cycles—		
£1,518	£4,058	£6,556
Parts thereof—		
£2,587	£2,405	£2,904
£4,105	£6,463	£9,460

The total exports during the two months ended February were :

£3,720	£6,519	£15,258
£5,188	£4,448	£5,187
£8,908	£10,967	£20,445

The Re-exports.

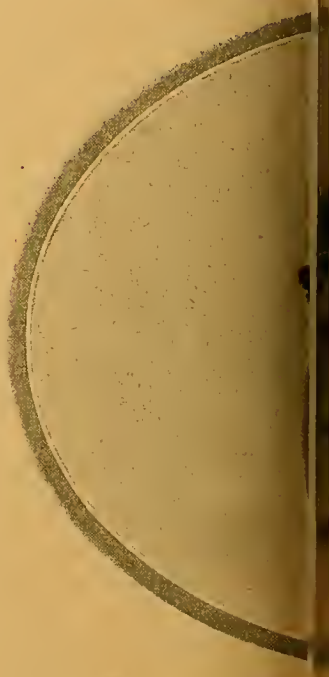
The re-exports of foreign-built machines from this country during February were represented by £150, the two months total being £674.

Monday or Thursday?

Last week we issued a query f that we could take a referendum readers to decide whether the d publication of *The Motor Cycle* remain Monday or be altered to day. The last day for posting is to-day, Monday, the 14th. W not yet made a careful count, h preponderance of replies is enor in favour of Thursday.

Manchester Motor Cyclists in the T.T

The Manchester Motor Club to have seven representatives Tourist Trophy Race next May following riders have already e Harry Reed, Percy Butler, A. J. house, F. Sirette, W. Heaton, Stevens. Another member, C. E. will probably ride a Premier.



G. Lee Evans covering a lap at Broo of about 68 miles per hour (timed by V mounts in forthcoming Brooklands e

The Surface of Sutton Ban

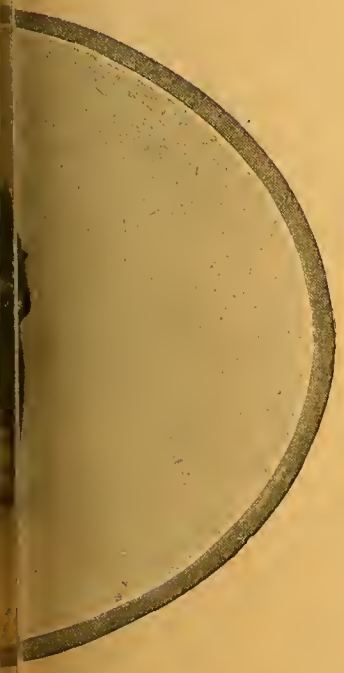
Early last week a number of t of the Harrogate and District visited Sutton Bank in order to the surface with a view to det whether a hill-climb could be he on Easter Saturday. The r report that the surface is little, worse than last year, but perha is more loose metal than usual. the Harrogate club is endeavo have removed. In view of th facts, the inter-club hill-climb the Herts County A.C., No London M.C.C., and Harrogate trict M.C.C. will take place at Bank on the 26th inst., comme 2 p.m., the necessary permissio been granted by Major Bower, Chief Constable of the North Fine weather is only needed to good afternoon's sport.

Accessories and Equipment.

I addition to our usual special fea- r twenty-six pages of this issue, in- ing 170 separate illustrations, are ved to descriptions of novel time- y accessories and the modern ument of a motor cycle.

London Centre of the A.C.U.

t Monday evening a meeting of ondon Centre of the A.C.U. was at 112, Piccadilly, W. The pro- gs began with the election of s. Mr. V. Hart was re-elected an, Mr. H. B. Renner hon. sec- . and Mr. A. G. Reynolds hon. rer. The representatives of the present then nominated their tes for the council meeting on the hinst. After this was done the lub championship rules were con-



h.p. twin-cylinder Indians at the rate at more will be heard of these speedy

at some length, and the clubs sked to convene a special com- meeting to consider the advis- of sending teams to compete. ondon Centre is composed of clubs, and if the London Eliminating Trial is held on the d date, namely, Saturday, June e best three of the teams out thirteen will take part in the The clubs have been asked to a course in the London district, replies from them will be sub- to a special sub-committee, and lts in return be submitted to tre Committee, which will be o meet on Monday, April 4th. llowing auditors have been for the London Centre: Mr. J. bage (Western District M.C.), Glyn-Rowden (North-west Lon- M.C.).

Buying Petrol in Small Quantities.

With reference to the question of small petrol supplies recently ventilated in these columns, a trifling improvement that would appeal equally to the garage proprietor who does not want to break a tin of petrol and the motorist who does not require the whole contents, is suggested by Mr. M. Hampton, of Douglas, Isle of Man, well known to T.T. riders. He says: "The objection to breaking a tin is frequently made because the seller has not measures for a small quantity, but if all tank gauges were marked either on the glass itself or the screw rod inside it, with a scale of contents (like medicine phials, for instance), there would be no necessity for sloppy and wasteful measurement. The petrol could be poured into the tank direct, and both the seller and the buyer would be satisfied, and objection to sell less than a sealed two-gallon can would speedily cease. As a seller, I heartily hope that this improvement may soon be a standard feature on every motor cycle tank."

Monster Meet of Motor Cyclists.

It is known already that the undermentioned clubs will participate in the general meeting of Northern motor cyclists at Richmond (Yorks) on Good Friday:

Middlesbrough and District M.C.C.
Newcastle and District M.C.C.
Bradford M.C.C.
Leeds M.C.C.
York County M.C.C.
Lancashire M.C.C.
Hull (Kingston) M.C.C.
Harrogate and District M.C.C.
Bishop Auckland, Darlington and District M.C.C.
Hartlepool and District M.C.C.
Hull and East Riding A.C.C.
Huddersfield and District M.C.C.
Redcar and District M.C.C.
Scarborough and District M.C.
Batley and District M.C.C.
Sunderland and District M.C.C.

Mr. Geoffrey W. Liddle, the organising secretary, advises us that he is also inviting the Ripon and Doncaster clubs. This meeting increases in popularity every year, and it is anticipated that at least 350 motor cyclists will foregather at the Old Market Square at Richmond between 10.30 and 12 noon on the 25th inst. The meeting will take the same form as in 1909, the programme being as follows:

10.30 to 12 a.m.—Assembly in Market Square.
12 to 1.45 p.m.—Lunch independently, as desired.
1.45 p.m. prompt.—Assemble at Market Cross for purpose of photograph for *The Motor Cycle*.
2 p.m.—Conference in the Town Hall, at which Mr. F. Straight (A.C.U. secretary) will probably be present.

Agenda:

Election of chairman and president.
Election of hon. sec. for 1911 meet.
Election of committee.
To determine dates of inter-club meets and competitions (if any).

We regret to announce that Mr. Liddle cannot see his way to undertake the duties of secretary another year owing to pressure of his own business.

London-Edinburgh Run.

An innovation as regards the Newcastle control is announced. The Newcastle and District Motor Cycle Club has kindly placed its club house at the disposal of competitors. The control at Newcastle will therefore be arranged at the Club House, and meals will also be partaken of there.

Amulree in the End-to-end.

We have a number of illustrations in preparation of Amulree Hill (Kenmore side) which the A.C.U. End-to-end Trials competitors will climb (?) next July. The several turnings will form the chief stumbling block to motor cyclists, although the surface is exceedingly rough in places. Snow has not yet disappeared from the summit, as will be seen by the accompanying reproduction of a photograph taken last week.

Snow has not yet disappeared from the top of Amulree (Kenmore side) which is the official climb in the End-to-end Trials.

CLUB NEWS.

(SEE ALSO PAGE 202.) (SEE ALSO PAGE 202.)

Redditch and District M.C.C.

A general meeting will be held at the Unicorn Hotel on Thursday next, the 17th inst., at 8 p.m., to adopt rules and to enrol members.

Coventry and Warwickshire M.C.

At the annual general meeting on Friday next, the 18th inst., at the Queen's Hotel, at 7.30 p.m., Mr. I. B. Hart-Davies will deliver a lecture on "The End-to-end Record." This will be illustrated with lantern views of incidents of the journey and scenes *en route*.

The opening run will take place the day following, when members are invited to meet for the start at 2.30 p.m. at Guiting House, Allesley, the residence of the president elect, Mr. J. V. Pugh, J.P. The run will take the form of a speed judging competition, for which a separate prize will be offered for car owners and motor cyclists. Tea at the Dun Cow, Dunchurch.

Derby and District M.C.C.

A fairly good response was made to the announcement of the inaugural meeting of the above. A committee and officers were elected, and a plan devised whereby it is hoped the club may soon enlist the whole of the motor cyclists in Derby and district. The next meeting will be held at the Carlton, Osmaston Road, Derby, on Friday next, the 18th inst.

The hon. secretary is Mr. R. Greatorex, 1, Sidney Street, Derby.

Nottingham and District M.C.C.

The opening run was held on Saturday last, Kelham being the destination.

This evening (Monday), at 7.45, Mr. Vernon Brook, hon. secretary of the Birmingham M.C.C., will give a lantern lecture on "Variable Gears" at the Welbeck Hotel.

Alfreton and District M.C.C.

An enjoyable evening was spent at a smoker on Tuesday last, when Mr. A. Aubrey Spring, the hon. secretary of the Notts club, gave a lantern exhibition of views, etc., taken during motor cycle tours, trials, etc. Songs were interspersed during the evening.

Cambridge University M.C.C.

A petrol consumption trial was held on Saturday, March 5th. At the start all tanks were emptied, and each competitor received a certain amount of petrol, depending upon the size of the engine. Each competitor had then to go as far as possible along the course, which was Cambridge to Godmanchester and Royston. There was a strong head wind for the greater part of the way.

Position.	Name.	Machine.	Distance. Miles.	Miles per gallon.
1.	F. P. Dickson	(7 V.S.)	27.7	103.1
2.	A. W. Brittan	(3½ T.T. Triumph)	27.1	144.2
3.	E. H. McCormick	(5 Indian)	26.1	115.2
4.	R. G. Heyn	(8 Minerva)	26.0	96.4
5.	W. T. Palmes	(3½ Triumph)	22.0	117.3
6.	V. M. F. Oliver	(7 V.S.)	21.4	79.4
7.	C. K. Wigram	(5 Rex)	20.1	88.2
8.	E. H. Lees	(5 Indian)	18.4	81.1
9.	J. M. Oakey	(5 Vindec)	17.6	77.5
10.	J. Ashworth	(2¾ Minerva)	17.3	112.2
11.	E. N. Clifton	(4½ Minerva)	15.6	68.8

Bristol Bicycle and M.C.

To celebrate the commencement of another season, a whist drive and dance was held on the 5th inst., eighty members and friends being present.

The following fixtures have been arranged for 1910:

FUTURE EVENTS.

Mar. 16—(Wed.) British Motor Cycle Racing Club Meeting at Brooklands.
" 25—General Meeting of Northern Motor Cycle Clubs at Richmond, Yorks.
" 25-28—M.C.C. Opening Run. Easter Tour to Salisbury. Jarrott Cup Competition.
" 25-28—N.W. London M.C.C. and Herts. County A.C. Inter-club Trial to Harrogate and back.
" 28—Brooklands A.R.C. Easter Meeting (two events for motor cycles.)
" 30 to April 2—Exhibition of Motor Cycles, at Leicester Association Hall.
April 13—(Wed.) B.M.C.R.C. Meeting.
" 20—A.C.U. Second Quarterly Trial.
" 27-28—Brooklands A.R.C. Meeting.
" 30—M.C.C. Members' Hill-climb.
May 4—B.M.C.R.C. Meeting at Brooklands.
" 4—Herts. County A.C. (motor cycle section) Open Hill-climb.
" 13, 14, and 16 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.
" 26 (Thursday)—International Motor Cycle T.T. Race in the Isle of Man.
" 27—Open Hill-climb in the Isle of Man.

Three reliability trials of 100 miles each, over a twenty-five mile course, to be held in April, June, and August. The first two of these will also be eliminating trials to pick a team for the M.C.C. inter-team trial for *The Motor Cycle* Cup, for which the Bristol B. and M.C. has decided to enter. A twenty-four hours' reliability trial from Bristol to Land's End and back will also be held, starting Friday evening, August 5th, and finishing Saturday evening.

Mr. E. J. Prosser, 1, Brecknock Road, Knowle, Bristol, is hon. secretary of the Motor Section.

Southport M.C.C.

The above club is of recent formation. At present amateurs only are eligible for membership. Mr. G. Arthur Gregson has been elected captain, Mr. Hugh Gibson sub-captain, and Mr. Hedley Breeze hon. treasurer. The subscription is 10s. 6d. The hon. secretary is Mr. R. Holford Jones, 9, Westbourne Road, Birkdale.

Essex M.C.

The A.G.M. was held at the Great Eastern Hotel last Tuesday, the chair being taken by Mr. O. L. Summers. The Secretary read the minutes of the last meeting, and also the annual report, which was adopted.

Owing to the illness of the hon. treasurer (Mr. A. G. Reynolds), it was reported that the balance-sheet was not available to place before the meeting, and it was agreed that its adoption be adjourned *sine die* and a special meeting be convened for the purpose.

Western District M.C.

The opening run (a paperchase) was largely attended. The lots for the hares fell to Messrs. Vowler and Steeves, who after having decided on their route were given some eight minutes start. They laid the trail *viâ* Osterley, Hounslow, Feltham, Colnbrook, and were duly run to earth at Langley Station by Messrs. F. Mullett and F. Ritchie, after a trail of some twenty-three miles. They were compelled to stop owing to the paper giving out.

Newcastle M.C.

At the first monthly meeting last Tuesday, it was decided to renew affiliation to the North-Eastern Automobile Association.

The opening meet, combined with a speed-judging competition, takes place at Belsay on Good Friday.

The president, Mr. Jos. R. Scott, has presented a silver challenge cup to the club.

South Manchester M.C.C.

The third smoking concert of the winter session took place at the club's headquarters, Denmark Hotel, Greenheys, and was a great success. A hot pot supper was served during the interval.

Sheffield and Hallamshire M.C.C.

The opening run is on Good Friday to Newark, followed two days later by a run to Bridlington. The first competition of 1910 is on April 16th, which will take the form of a speed-judging competition to Hathersage.

Southampton and District M.C.

The annual meeting was held on Wednesday, Mr. A. G. Butler in the chair. It was decided to hold the opening run on Good Friday, the members meeting at headquarters at 2 p.m., and afterwards running to Hursley *viâ* Romsey, and home by way of Winchester. It was decided to fix runs for Wednesdays, Saturdays, and Sundays, and to hold club competitions in the form of a hill-climb, motor paperchase, reliability trial, slow running, speed-judging contests, etc.

THE MOTOR CYCLE

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ADDRESS—20, TUDOR STREET, LONDON, E.C.

Our Readers Vote for Thursday.

IN our issue of March 7th a query was propounded asking readers on which day they preferred to have their *Motor Cycle*. The circular set forth the advantages and disadvantages of both Monday and Thursday as days of publication, and our readers were asked to decide the question for themselves by each filling up a voting form. The voting has resulted so unanimously in favour of Thursday that we have no hesitation in deciding to publish in future on that day, and the next issue will be dated March 31st. No previous subject on which we have taken the opinions of our readers has elicited so many replies or so much unanimity. When sending in their voting papers many readers have written us also informing us that they prefer well-considered and well-illustrated descriptions of all week-end events to appear later in the week and at a time when they have leisure to read them. The question of the week-end seems to have weighed very considerably, as many when voting for Thursday suggest that Saturday might be better still as nearer their time of leisure. The letters also show that our readers emphatically believe in everyone having one day's rest in a week, which in these times is usually sufficiently strenuous without turning Sunday into an ordinary working day.

Club secretaries have voted strongly for Thursday, and have confirmed our statement that it is often a matter of great difficulty and inconvenience for them to arrive at results of Saturday afternoon events in time for Monday publication, and they prefer such results and doings of their organisations to be in the hands of their members on the Thursday following the event in preference to the Monday week, which is inevitable when such particulars do not reach the publishing offices the day after the competition.

The counting of the votes has revealed the following startling figures—a result which we must admit we hardly expected. Had we known that motor cyclists were so undivided in their opinion the publishing day of this journal would never have been Monday.

The figures are:

For Thursday	... ...	94.5 per cent.
,, Monday	... ...	4.52 ,, ,,
Suggesting other days	...	.98 ,, ,,

When the large and world-wide circulation of this journal is taken into account it will be realised that it is bought and read for other purposes than ascertaining results of competitions. Thousands of our readers are much more interested in accounts of tours, technical articles and descriptions of new machines and accessories, correspondence, replies to queries, and general information. This is a point which is rather apt to be forgotten despite its importance.

That motor cyclists generally are not keen on Monday publication is now an assured fact, and the referendum has made our course clear. We shall publish on Thursday, which will enable us to include more interesting and critical descriptions of all competitions. We shall have more time to prepare an increased number of better illustrations of current events. The usual weekly features of the paper will be more complete, and our readers will have the satisfaction of knowing when they read *The Motor Cycle* that they are assisting us to abolish Sunday labour and to provide a better paper

Suggested Curtailment of A.C.U. Trials.

OUR readers, and particularly those who support the Auto Cycle Union competitions, will be interested to know that at a recent meeting of the Cycle and Motor Cycle Manufacturers' and Traders' Union a resolution was carried that in the opinion of the meeting it was advisable that motor cycle trials should be curtailed in number, and a voting paper has been sent out to all members of the Union, and also to those motor cycle manufacturers who have not yet joined it, asking if they will be willing to sign a bond not to compete in (1) the Auto Cycle Union Quarterly Trials and (2) the Auto Cycle Union Six Days' Trials. The decision of the Traders' Union to obtain the opinion of the whole of the trade on the subject of trials has come as no surprise to us. We have already commented on the subject, and hinted that the number of trials was in excess of the actual requirements, and that it might be advantageous to curtail them, but we certainly never thought that such an important event as the Six Days' Trials would be singled out, and we hope that before coming to any hasty decision the trade will give the subject of trials their earnest consideration, as the abolition of all, or nearly all, trials would mean stagnation.

Pros and Cons of Open Trials.

WHILE we are on the subject it might be advisable to set forth the advantages and disadvantages of open trials such as the two events mentioned. To discuss the advantages: First, trials improve the breed of the machine by weeding out the incapable ones. Second, they enable makers to prove to the public the capabilities of the various motor cycles on the market. Third, they advertise the pastime and increase the amount of interest taken in motor cycles, drawing new recruits to the ranks. Fourth, small makers are enabled to gain a footing in the industry, which may otherwise take many years of patient advertising and missionary work to obtain and at a cost very much in excess of the expense entailed in competing. Fifth, open trials provide a means of testing new forms of mechanism and accessories against old tried ideas, which latter might otherwise never be altered unless opportunity existed to prove that later devices were superior. Sixth, a sporting rivalry is created among manufacturers, which ultimately benefits riders by providing them with improved machines. Seventh, open road competitions are a more reliable test of the capabilities of roadster machines as compared with more or less artificial track performances, which, although sporting and helpful, are not equivalent to competitions held under ordinary touring conditions.

A petrol stop at Baldock in the Herts County A.C. trial on the 12th inst. The competitors are—W. Pratt (P. & M. and sidecar and C. C. Cooke (3½ h.p. Triumph). (See page 247.)

Having enumerated the various advantages to motor cyclists and the industry, we will now refer to the disadvantages. First, open competitions of this nature are costly to the manufacturers, and therefore indirectly add to the price which the rider has to pay for his machine. Second, they occupy the time of the A.C.U. officials, who would otherwise be able to devote more of their energies to the organisation of motor cyclists and the amelioration of their lot. Third, they are an incentive to makers to enter trained professional riders in competition with their own customers on the same machines. They are practically compelled to do this to prevent their customers being beaten by other makers' mechanics. As we have repeatedly pointed out, this often disgusts owners, who seldom win unless they have the same intimate knowledge of their mounts as the trade rider and are prepared to devote unlimited cash and time to the pastime.

Personally, we should not like to see the Quarterly or the Six Days' Trials abandoned, but if a choice must be made, we should prefer the Quarterly Trials to be sacrificed in preference to what we think is by far the more important trial. One day's ride of 120 miles, even though it has to be a non-stop, is not the same proof of reliability as an extended competition amounting to an average of nearly 170 miles a day.

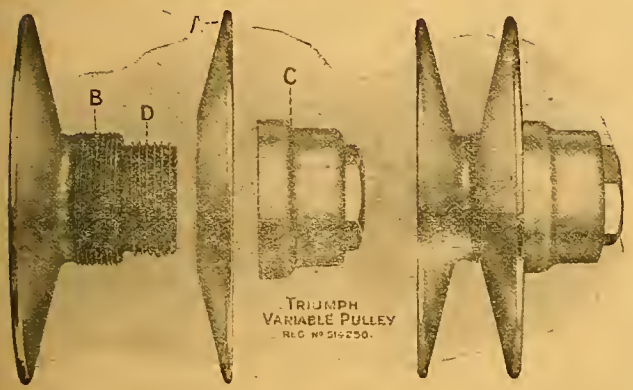
Two Suggestions.

THERE will be some consternation in the minds of the A.C.U. officials when they hear that the trade are considering the question of curtailing their competitions, but it would be advisable for them to see if they could not, by adopting a different policy, depend more upon amateur riders for their open events. The A.C.U. may say it is impossible because the entry fees are never sufficient to pay the cost of a big trial. We should like to suggest that, if the trade decide not to support the Six Days' Trials, the A.C.U. should revise its definition of a private owner somewhat to allow the makers to pay riders' entrance fees, provided the latter pay their own expenses and buy their machine. Another suggestion is for the whole of the makers and the trade to subscribe between them sufficient to enable the A.C.U. to throw open the Six Days' Trials at a purely nominal entrance fee to all who care to compete. Either of these suggestions would relieve the trade of the expense of sending a big staff of their own men right through the trials, and would ultimately result in a more perfect test of reliability. Under the above conditions every machine would be ridden by private owners possessed of no more than the usual mechanical skill, and merit would be sure to show itself to a greater extent, perhaps, than it does to-day.

Triumph

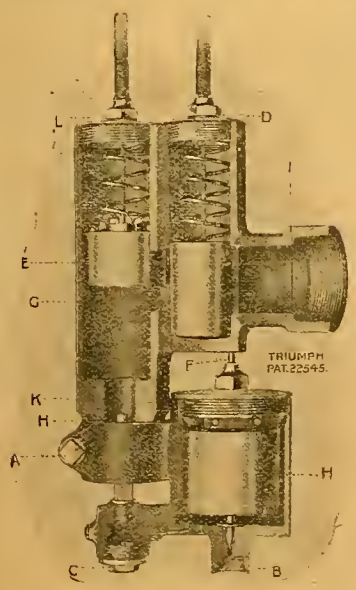
Motoring is made a great deal more pleasurable providing your motor possesses those fitments and refinements which will make it more convenient and comfortable to ride.

No other motor is so fully and exclusively equipped as the Triumph, and we illustrate just two of its special features—there are many others, all illustrated in the Triumph Catalogue.



The Triumph Variable Pulley.

The Triumph Variable Pulley is a great boon to riders touring or living in hilly districts. It gives a range of gears from 4½ to 1 to 6½ to 1, and changes can be effected in a few minutes.



The Triumph Carburetter.

Another Triumph exclusive feature is the patent Carburetter. It will be seen from the sectional illustration that two small pistons govern the air and gas supply. These are controlled from the handle-bar, and the adjustment being extremely sensitive a most perfect mixture is obtained at all speeds. It can be easily dismantled for cleaning purposes.

Catalogue with new Booklet entitled "Hints and Tips for Triumph Motor Cyclists," post free.

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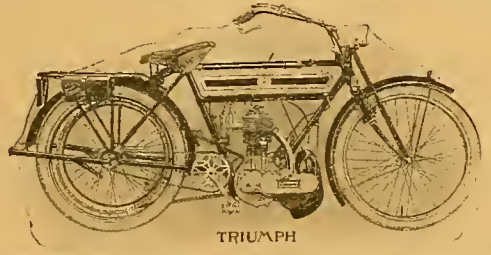

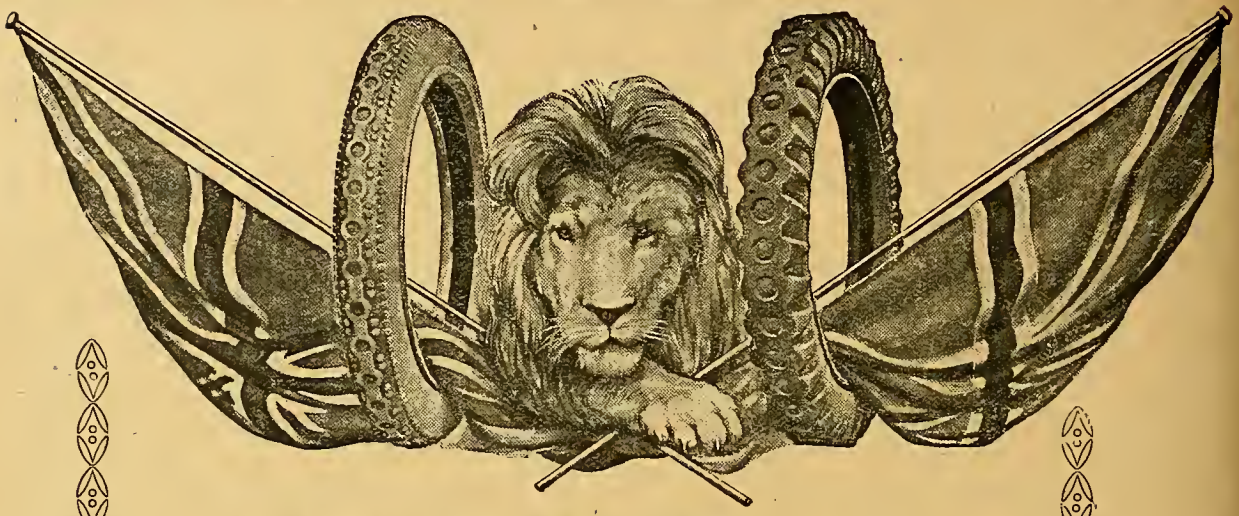

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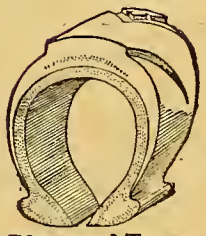

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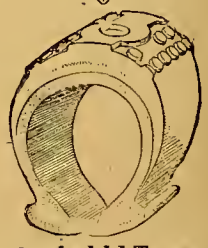

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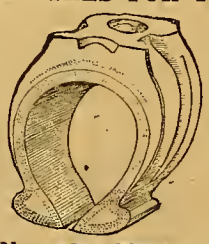

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C D.C.

SUGGESTED IMPROVEMENTS IN DESIGN.

By A.M.I.C.E.

HAS finality been reached in the design of motor cycles? I for one say emphatically, "No." In the hope that my views may be of interest, may I suggest the following principles as sound?

FRAME.—Give up the horizontal top tube; it alone stands in the way of the following: Seat low and forward, long head and big tank. The accompanying illustrations are of an experimental machine I have had built. The tank holds two and a quarter gallons of petrol and half a gallon of oil, as well as a cupboard. I have had 2in. stoppers for years; they are one too big. The appearance of the complete machine may not be exactly elegant.

BACK WHEEL.—This should be sprung. The T.A.C. method is the soundest that has yet appeared. A rise and fall of 4in. should be allowed for both wheels. There are plenty of roads in England which can hardly be ridden on at much over 6 m.p.h. on a push-cycle, e.g., those where every yard or so a sett has sunk an inch or two.

TYRES AND WHEELS.—These would be better bigger. A 3in. tyre would be a great improvement; 26in. wheels are quite the minimum for our roads; 28in. or 30in. wheels would ride easier.

DRIVE.—Though I admire the worm, I do not admire the shaft with its universal joints always at work, with spring back wheel. I think the chain is more suitable, but it must have an oil bath and an elastic (not a slipping) connection. A chain of ample strength and properly cased should not be seen, heard, or felt during a whole year's riding. The usual slipping connection is, of course, only a makeshift, which prevents the chain from breaking. We want something more than just this. It is quite unsound, as "starting friction" in such a case is greater than "moving friction." The engine impulses should be absorbed and given out again—not lost in friction.

A Novel Form of Variable Gear.

One word for the V belt. In conjunction with a chain for gear reduction, it can provide a simple variable gear by means of two adjustable pulleys, one worked by a centrifugal governor and the other kept to the belt by a spring—a combination of a J.A.P. pulley reversed and a L.M.C. pulley. Such a gear changes automatically, according to the pull and speed of the engine, and gives a sweet and silent drive. The pulleys are both large, and the belt enclosed, of course; but even then I doubt if it would wear a whole season. For a chain drive, I think the least we want is a three-speed epicyclic gear on a counter-shaft.

ENGINE.—The four-stroke type, with pressure induction and a large combustion space, would give more power for weight than the usual type. Its strong point is flexibility. The two-stroke engine sounds attractive, but seldom if ever can be made to run slowly.

Small magnetos want improving, so as to give handle-starting on engine-shaft with all cold.

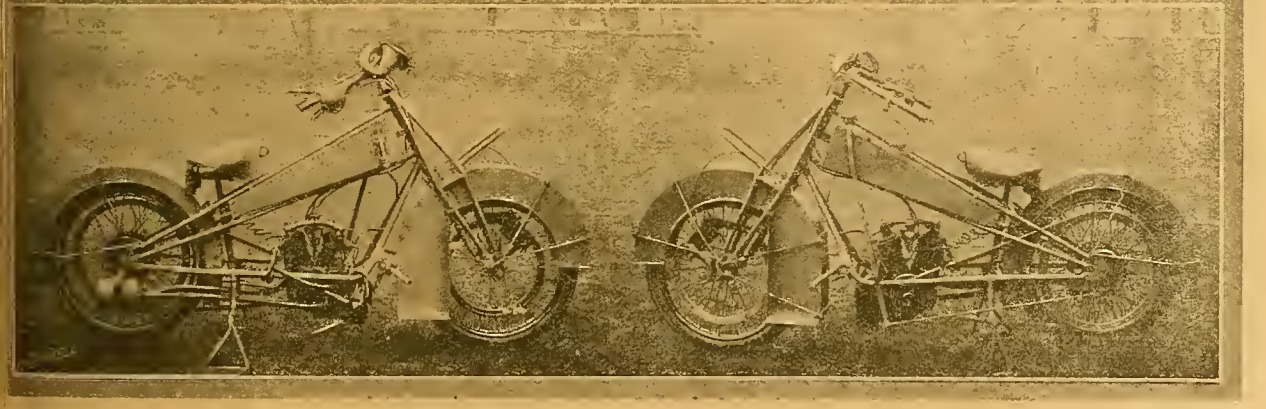
Carburetter Design.

CARBURETTER.—This, in my opinion, is one of the worst things about the modern motor cycle. I have leanings towards the wick surface type, but as regards the spray carburetter, automatic air adjustment is essential. It is now successful on cars, and the days are past when a witty writer described it as giving an incorrect mixture at all speeds. A simple improvement would be the automatic regulation of the spark advance relative to the engine speed. This must, of course, be connected to the throttle by a lever with a moveable fulcrum, so that one can get the whole range of speed with different positions of the throttle, according to the load. When tried without this last connection it has always been a failure.

Silence, especially when running free, needs immense improvement. The argument that a silent machine is dangerous because it cannot be heard is surely quite unsound. It is a good excuse for some manufacturers whose machines are notoriously noisy.

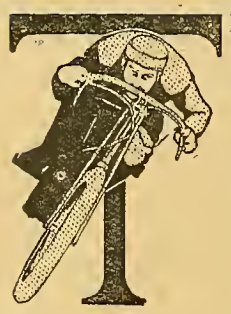
MUDGUARDING.—This wants revolutionising, and it is quite easy with a little thought. The mud has only two proper places—on the ground and *inside* the guards. It wants keeping on one or in the other.

WEIGHT.—The lower the better. Weight is a great disadvantage, but this can be minimised by a really efficient stand. On the other hand, nothing can atone for the absence of comfort or reliability. It is largely a matter of speed, and there is a good deal in the length as well as the weight of the rider. I happen to be leggy, and I simply cannot ride a machine unless it has a longish wheelbase, and this does not conduce to lightness.



A novel motor bicycle possessing many original features, built to the order of A.M.I.C.E. the writer of the article on this page.

BRITISH MOTOR CYCLE RACING CLUB MEETING.



THE first members' meeting of the B.M.C.R.C. took place on Wednesday last on Brooklands track in glorious spring weather. Hardly a cloud was in the sky, yet there was a wind which blew somewhat strongly down the railway straight, and made its presence felt unpleasantly by the competitors. Wednesday's meeting will always be remembered in the annals of the B.M.C.R.C., as it marks the first occasion on which Royalty has ever graced a motor cycle event held in the British Isles by its presence. Shortly after the hour T.T. race had started His Serene Highness Prince Francis of Teck, the patron of the Club, arrived in Mr. J. W. Orde's Daimler.

At 2.30 p.m. a large number of spectators had assembled to witness the first event, the majority of whom arrived by motor cycle. Never before had a motor cycle event on the track been so well attended.

The All Comers' Handicap Race was open to all classes of motor bicycle the cubical cylinder capacity of whose engines does not exceed 1,000 c.c. First prize, Club's gold medal; second prize, Club's silver medal; third prize, Club's bronze medal. Distance, 8.48 miles. "Fork" start, "Straight" finish. The competitors passed the fork twice, and then entered the straight. The following members took part in this event:

No.	Rider.	Machine.	Bore and stroke.	c.c.	Start. m. s.
1.	F. A. McNab	(1-cyl. Trump-J.A.P.)	85 × 85	482	1 51
3.	C. E. Bennett	(2-cyl. Indian)	70 × 83	638	0 36
4.	H. L. Cooper	(1-cyl. Triumph)	84 × 86	476	1 55
5.	G. Lee Evans	(1-cyl. Indian)	82.5 × 93	497	1 9
6.	D. R. Clarke	(2-cyl. Indian)	70 × 83	638	0 36
7.	A. C. Maitland	(1-cyl. Trump-J.A.P.)	85 × 85	482	1 51
8.	H. H. Bowen	(1-cyl. Bat)	85 × 85	482	1 9
9.	W. O. Bentley	(2-cyl. Indian)	70 × 83	638	0 36
10.	W. Chitty	(1-cyl. Uxbridge)	85 × 60	340	2 20
11.	H. V. Colver	(2-cyl. Matchless)	85 × 58	628	scr.
15.	H. Martin	(1-cyl. Martin-J.A.P.)	85 × 60	340	2 20
18.	A. Oberländer	(2-cyl. N.S.U.)	80 × 99	995	0 25
19.	C. Patteson	(2-cyl. Moto-Rêve)	50 × 85	334	4 0

Just before the race was started Major Lloyd gave the spectators permission to witness the start at the fork, on condition they immediately afterwards returned to the paddock to see the finish down the straight. This concession was much appreciated, but, unfortunately, as is always the case with motor cycle races which finish in the straight, it was almost impossible to follow the riders' progress.

Harry Martin (Martin-J.A.P.), the first to finish in the All Comers' Handicap Race.

Martin came in an easy first far ahead of the others, but almost immediately before he crossed the line his trembler blade came adrift, and he just managed to complete the course. The winner's time was 10m. 16s.

		Start. m. s.
1.	H. Martin (Martin-J.A.P.)	2 20
2.	W. O. Bentley (Indian)	0 36
3.	H. H. Bowen (Bat)	1 9

The remainder finished in the following order: H. V. Colver, F. A. McNab, C. Patteson, C. E. Bennett, H. L. Cooper, W. Chitty, A. Maitland, G. L. Evans, and D. Clarke.

Start of the Hour Tourist Trophy Race for motor cycles complying with the 1910 conditions. There were fifteen entrants.

British Motor Cycle Racing Club Meeting.—

The Hour T.T. Race.

The next event was the Hour Tourist Trophy Race, open to motor cycles complying with the 1910 T.T. conditions, except that touring accessories, such as mudguards, etc., could be removed. First prize, silver cup, presented by Mr. W. H. Wells; second prize, club's gold medal; third prize, club's silver medal. The start and finish were at the fork, so that the spectators were able to follow the race comfortably throughout.

Indian machines performed the hat trick in the Hour T.T. Race. C. E. Bennett (right) was first, W. O. Bentley second, and G. Lee Evans third.

The following competitors took part in this event:

	Rider.	Machine.	Bore and stroke.	c.c.
1.	F. A. McNab	(1-cyl. Trump-J.A.P.) ...	85 × 85	482
3.	C. E. Bennett	(2-cyl. Indian)	70 × 83	638
5.	G. Lee Evans	(2-cyl. Indian)	70 × 83	638
7.	A. C. Maitland	(1-cyl. Trump-J.A.P.) ...	85 × 85	482
8.	H. H. Bowen	(1-cyl. Bat)	85 × 85	482
9.	W. O. Bentley	(2-cyl. Indian)	70 × 83	638
0.	C. R. Collier	(2-cyl. Matchless)	85 × 58	628
1.	M. Geiger	(2-cyl. V.S.)	75 × 75	663
2.	A. G. Fenn	(1-cyl. Triumph)	85 × 88	499
8.	A. Oberländer	(1-cyl. N.S.U.)	85 × 88	499

Messrs. Straight, Ebblewhite, and Dutton acted as timekeepers and handicappers in both this and the previous events. At the start Bowen got away well, and so did the others except Oberländer, who stopped about 200 yards from the fork and then got under way again.

Immediately after his arrival Prince Francis of Teck took a lively interest in the race, and after chatting for a few minutes with Major Lloyd, he walked over to the timekeeper's table and there talked to Messrs. Wells and Bischoff for some time.

The Lap Positions.

At the end of the first lap the men passed in the following order: Bennett, Lee-Evans, Bentley, Bowen, Collier, McNab, Geiger, Fenn, Maitland, and Oberländer.

In the second lap Bentley was pressing Evans hard, Collier crept up to fourth place, and McNab, Fenn, Geiger, Maitland, and Oberländer followed.

Bentley assumed the second place in the third lap, with Bennett leading and Evans third—a position which the three Indians maintained till the end of the race. Bennett increased his lead lap by lap, and was soon far ahead, reeling off the circuits at about sixty-two miles an hour; the rest were nowhere. Geiger retired in the seventh lap through valve trouble, and in the ninth lap Oberländer gave up. Maitland retired during the eighth lap.

Gradually the leading men assumed and maintained the following order: Bennett, Bentley, Evans, Bowen, McNab, Collier, and Fenn, till Collier retired at the end of the seventeenth lap.

Class D. New Fifty Miles Record.

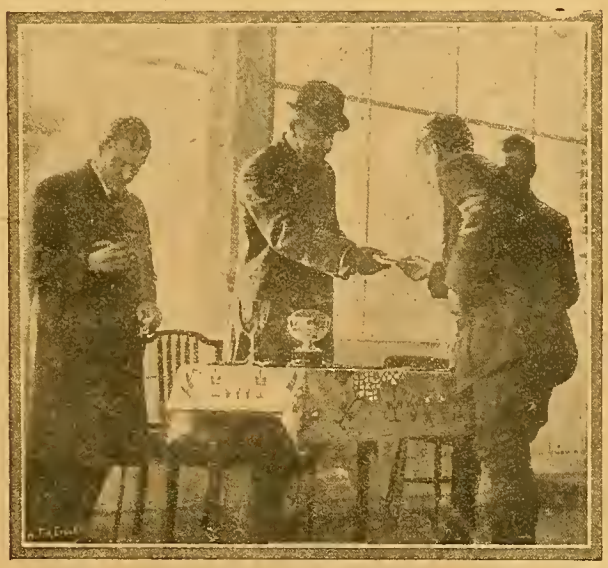
Fifty miles were covered by Bennett in 49m. 55⅖s., which constituted a record for Class D. Bentley's time was 51m. 14⅖s., and Evans's time 53m. 14⅗s.

The following are the results of the T.T. Race, and the distances covered in the hour:

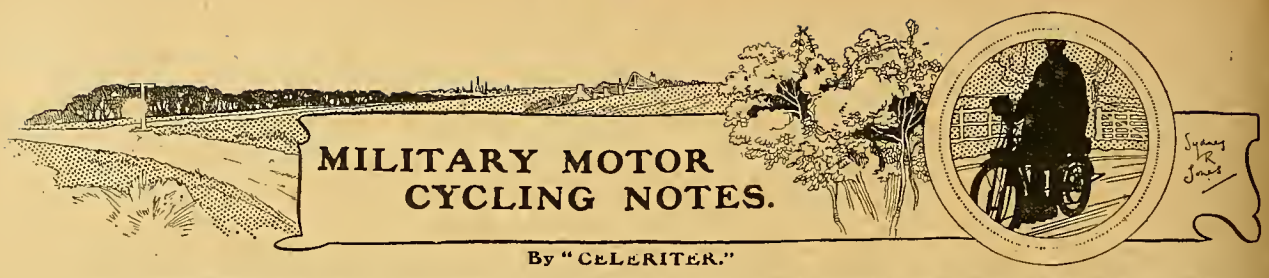
No.	Rider and Machine.	c.c.	Distance. Mls.	Yds.
1.	C. E. Bennett (2-cyl. Indian) ...	638	59	870
2.	W. O. Bentley (2-cyl. Indian) ...	638	58	1,040
3.	G. Lee-Evans (2-cyl. Indian) ...	638	55	690
4.	F. A. McNab (1-cyl. Trump-J.A.P.)	482	54	1,715
5.	H. H. Bowen (1-cyl. Bat)	482	54	1,420
6.	A. G. Fenn (1-cyl. Triumph) ...	499	48	1,020

At the conclusion of the race Mr. Wells and the riders of the Indians received the hearty congratulations of the spectators for the splendid performances of their machines. The prizes won last year were then distributed by H.S.H. Prince Francis of Teck, K.C.V.O., D.S.O., in the verandah of the club buildings. Of the recipients, McNab carried away three cups, one bowl, and two silver medals, Bowen seven cups and one gold medal, and Lee Evans four gold medals. The numerous other certificates and prizes were also awarded to those of the winners who were present.

In addition to these, gold medals were given to Messrs. A. V. Ebblewhite and A. G. Reynolds for the special services they had rendered to the club. It was indeed good to see Reynolds once again on the track, last Wednesday being his first appearance since his recent severe illness. Prince Francis concluded the ceremony by congratulating Wells on the three Indian machines finishing first, second, and third, and appreciating the pluck and skill displayed by the competitors.



H.S.H. Prince Francis of Teck, K.C.V.O., D.S.O., presents the prizes.



MILITARY MOTOR CYCLING NOTES.

By "CELERITER."

This fresh feature is specially contributed to "The Motor Cycle" by a military officer who has a very thorough grasp of his subject in all its details. Those who read this month's and subsequent instalments—the feature will be repeated monthly)—may rest assured that they are perusing an article which will give them a true insight into motor cycling military matters, and teach them all there is to be known regarding the kind of warfare in which a motor cyclist could be of service.

A GOOD deal of arrant nonsense has been written lately on the possibilities of the motor cycle for the purposes of war. It is a pity that people who do not understand the subject should talk, but it becomes worse when they write, and worst of all when they get their writings printed. The majority of the public are credulous, and when they see a thing in print they usually believe; those in the know smile and treat the matter as a joke. It is no joke to mislead people to believe that which is not true, more especially where a question of national importance is involved. I shall therefore take a particular delight in tearing to pieces those false prophets who foresee armies of motor cyclists careering coastwards to meet the invader —a delight which will be only equalled by the joy I shall feel in pulverising those pessimists who are too thick-headed to admit that the motor cycle has its uses from a military point of view.

The War Office Point of View.

The Military Authorities have, up to the present, taken up their usual attitude as regards motor cyclists. These economists have always adopted the maxim that it is poor policy to pay for a thing which you can get for nothing. They acknowledge and admit that the motor cyclist is useful and frequently invaluable. On manœuvres, at a pinch, they can just manage to do without him—in war time he would be indispensable. In peace time therefore they trade on the good nature and keenness of motor cyclists, arguing that with luck they will probably on manœuvres get as many men as they want for very little expense. As regards the more serious business of war they content themselves with the hope that some other fellow will be responsible then, and get the blame—in the meanwhile they themselves are acquiring kudos by keeping down expenses. The question now arises as to what attitude motor cyclists intend to adopt. Are we going to be content to fall in with the War Office scheme of economics and volunteer individually for odd doses of work at manœuvres, or are we going to play the strong man's part and say, "Either we do this thing properly—and at your expense—or not at all"? So long as the War Office, by spending a paltry hundred and fifty pounds or so, can get as many motor cyclists as are absolutely necessary for the conduct of the autumn manœuvres, it is unlikely that the scheme under consideration for forming a Territorial Motor Cycle Corps at an annual cost of one thousand pounds will obtain sanction.

It is merely a matter of negotiation—that is to say, bluff and blarney! Not so very long ago military cyclists were in exactly the same position. So long as they were content to mess along in a semi-authorised way, they could not get concessions out of the authorities; when, however, they took a firm stand and insisted on proper organisation, recognition and pay, they got it and are now a flourishing branch of the service.

A Hint from the Cyclist Battalions.

The Army cannot afford to do without motor cyclists, but it will naturally make the best bargain it can to obtain their services. It is more than possible that within a few weeks all motor cyclists will be asked to join that spectral force which is to be known as the "Technical Reserve." Joining will consist in registering a name and address, technicality will consist in capacity to drive a motor cycle, whilst the reserve item of the contract means that man will be in reserve until he is wanted. An excellent arrangement so far as the War Office is concerned—and so cheap! but not of much use to the motor cyclist who is anxious to do a little military work.

For some years now the cyclist battalions have been agitating to be allowed to enlist a section of motor cyclists. The attitude of the War Office up to the present has been one of tacit acquiescence, provided no additional expense were incurred. On the other hand, whenever motor cyclists were wanted by the Army for manœuvres, or by the General Staff for special duties, the authorities have come a-begging to the cyclist battalions—and never in vain. The battalions wanted the authorities to realise how indispensable motor cyclists were. They have achieved this end. Next manœuvre season the battalions will refuse to supply motor cyclists unless official recognition and pay be granted for the organisation of a motor cycle section. This is the attitude that civilian motor cyclists also should adopt if they want to win this game of beggar-my-neighbour. If the Army want motor cyclists, then it must form a proper motor cycle corps, which will give the members thereof training and experience, and, above all, an official status with a chance of promotion and recognition of services.

The Scheme now before the Authorities.

The scheme for the formation of the Motor Cycle Corps which is now being considered in Whitehall was outlined in these pages recently, and has much to recommend it from both the civilian and the military point of view. Men who join will be afforded opportunities of doing most interesting work without having to put their hands into their pockets; they will also receive a uniform and a recognised military position.

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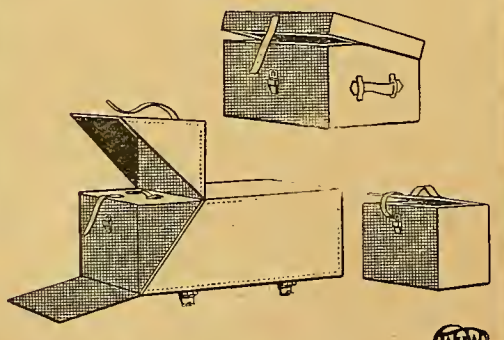

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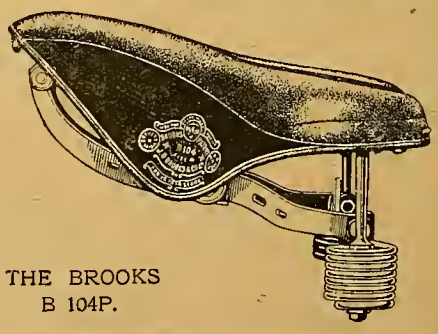

THE BROOKS
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Military Motor Cycle Notes.—

From the military point of view a reliable corps of picked men, well trained to the duties they would have to perform, will be available. The only drawback is that everlasting stumbling-block—expense! Each motor cyclist would cost the country £4 per annum on the average. It is not much when we consider that the Territorial infantryman costs £7 and the yeoman £14, and one can only say that if he is not worth £4, then he cannot be worth having at all—which, as Euclid remarks, is absurd!

An Appeal to Readers of "The Motor Cycle."

Whilst the authorities are still debating in their minds what they will do in the matter, there is only one course open to every motor cyclist who is keen to see his hobby play an important *rôle* in national defence. He should send in his name to the Editor of this journal, stating that he would be willing to join the corps when formed, but refusing to join any mole-in-the-corner organisation. It is only by showing a united front that we can hope to gain our legitimate position and the recognition which we deserve. Doubtless it is pleasant enough to go to army manœuvres in civilian attire with a badge on one's arm—it is pleasant, and the expense is almost covered by the allowances—but is it playing the game? Why should motor cyclists make what Mr. Kipling calls "giddy mirumphradites" of themselves—soldier and civilian too—because the authorities are anxious to economise a few pounds? Like our friends of the Army Motor Reserve, our cousins of the cyclist battalions, we deserve recognition and an official status. Let us see to it that we have it. Let the war cry go forth, "No Motor Cycle Corps, no motor cyclists for manœuvres!" In the meantime let us strengthen our own position by registering ourselves, so that when the tussle comes next summer our spokesmen can turn to Whitehall and say, "We have 250 motor cyclists ready to join and to get into uniform if you will sanction the formation of the corps, but we are not going to have anything to do with half measures."

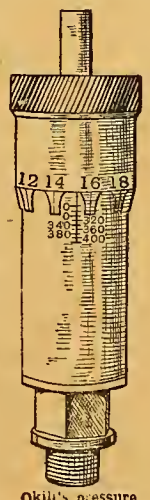
An Ideal Club.

And if the authorities give way—as they will have to do sooner or later—what an ideal All-England club will be constituted! There are thousands of keen motor cyclists who do not belong to any motor cycle club, and do not want to, perhaps, but even these ploughers of the "lonely furrow" would be glad to have motoring friends dotted all over the country—men whom they could arrange to meet for the week-end jaunts—men, too, of about the same social and mental calibre as themselves. Once the Motor Cycle Corps is a concrete fact, it will soon become very popular amongst the best of our motor cyclists. Pleasant days on the road will be easy to arrange. Corporal Jones of Nottingham will write to his friend Sergeant Brown of Chester, and by return of post all will be fixed up. The Nottingham patrol and the Chester patrols will arrange a joint affair, and renew friendships formed at last year's camp or autumn manœuvres. Incidentally, they will learn a few tricks of despatch-carrying and of motor cycle warfare.

(Next month "The Art of Despatch-bearing.")

THE OKILL PRESSURE GAUGE.

FOR some time past we have had one of Okill's compression indicators in use, and have found it a most useful instrument for verifying loss of power. The indicator is particularly useful for multi-cylinder engines, as one cylinder has often better compression than the remaining one or three, and it is difficult to locate where the leakage is actually taking place without some form of indicator, such as the one now under review.



Okill's pressure indicator.

In the case of some single-cylinder engines where the combustion head is very close to the tank it might be difficult to insert the indicator without removing the engine from its cradle, but it is easily screwed into the sparking plug hole of a V type twin-cylinder engine The engine can then be started up on one cylinder, when the indicator will register the amount of pressure in pounds per square inch in the cold cylinder. After one cylinder has been so tested the indicator can be changed over, and the amount of variation in the compression of the two cylinders is thus known. The explosion pressure can also be registered with the same instrument, but in the case of air-cooled engines it is advisable when this is done not to run the engine more than a few seconds, otherwise the indicator might be damaged. The construction of the gauge is most simple, and there are very few working parts. To use it the knurled adjusting screw at the top is set to the approximate figure of compression in pounds per square inch which the cylinder should possess, and the engine is then started. In the case of a single-cylinder engine on cold compression test, it can be pedalled over compression for a few seconds by a willing helper. The tester then places a forefinger on the top of the plunger shown at the top of the indicator, and the knurled screw is turned backwards or forwards until all trace of vibration is lost in the plunger. When the plunger ceases to vibrate the compression will be found on the figure scale marked on the cylinder of the indicator. If it is not possible to secure the aid of a friend to pedal, the actual explosion pressure can be taken on a motor cycle single-cylinder engine fitted with one ignition by procuring a Y-shaped adapter to take the indicator in one hole of the branch and the sparking plug in the other. From experience with the Okill gauge we have found it most useful, and, of course, it is a far more practical and surer method of ascertaining the maximum amount of compression in the cylinder than by standing on the pedal or turning the engine round by hand, as in the case of two-speed geared and other motor cycle engines fitted with handle starting. The makers of the Okill indicator are Messrs. Taylors, All Saints' Street, Bolton, who will gladly supply particulars and prices to any of our readers who may feel disposed to add one of these indicators to their kit as an aid to tuning up operations.

ACROSS THE AMERICAN CONTINENT ON A MOTOR CYCLE

By Stanley Bowmar.

Previous instalments appeared in our issues of March 7th and 14th.

Ogden, the capital of the state, is a clean, spacious city; but Salt Lake is for the Mormons—the City of Saints. It, too, is exceedingly beautiful—has wide streets, bordered by shady trees, and by every pavement there is a stream of cool mountain water. I had forgotten. The Mormons to the Mormons are not Mormons, but Latter Day Saints—a fact which the polygamous population likes visitors to remember. Joseph Smith—"Prophet" is, I fancy, his correct title—is the present head of the church. Prophet Smith's forty-fifth child was born just about the time of my visit. But the good old days, when every Mormon, like the Chinaman of to-day, was allowed to keep as many wives as he could support, or as many as he could persuade to support themselves (which was much more satisfactory), were, of course, recently brought to an end by an Act of Parliament passed by unsympathetic and jealous Washington Congressmen.

The famous temple, the chief attraction of Salt Lake, one must admire from the outside. It is guarded as strictly as a Japanese fort. The tabernacle is, however, open to the public, and at the bureau established for the benefit of the visitors, booklets calculated to convert an Ingersoll are doled out liberally.

So far as the population is concerned, Salt Lake City, which for years was almost exclusively Mormon, is now about evenly divided between Saints and "sinners." The best daily paper upholds the cause of Brigham Young; two others are controlled by the Gentiles, and the two sects vilify each other in typical Wild Western Yankee style—no "by your leaves" or "beg pardons."

The Tales of the American Abroad.

The American abroad is fond of talking with a flourish of the big things at home—big trusts, big fortunes, big ranches, huge buildings, and great lakes. The complacent Britisher listens impatiently, smiles sarcastically, and decides on a Continental tour. "No desire to see America," says he; "Yankee big things don't interest me." But does the American exaggerate habitually? I do not think so. His exaggeration is, it seems to me, greatly exaggerated by those who might do worse than study some of his methods and achievements and learn something from his marvellous adaptability and enterprise.

One of the little known monuments of American enterprise is in Utah—the Union Pacific Railway bridge across the Great Salt Lake (see illustration on page 179 of the issue of March 7th). From the first plank to the last the distance is forty-five miles. Like a taut steel rope it stretches, straight as a die, across the sparkling snow-white salt beach, to lose itself away in the distance on the dancing waters. In times of storm it is lost in sheets of spray, which drench the passing trains. At Mid Lake Station, in the middle of the bridge, there is a telegraph station and a camp of repairmen, who keep watch on the bridge night and day.

When the Union Pacific Railroad was constructed the line ran round the head of the lake—a detour of forty miles—which necessitated also the negotiation of a heavy gradient. This gradient disorganised the traffic. It was the weak link in the chain, by which train loads had to be regulated. Hence the Great Salt Lake bridge.

Leaving behind me the comforts of Utah, I headed for the bridge, although it is purely for railroad traffic. It was dark before I reached the eastern side. The only house in the neighbourhood would have nothing to do with me.

"Here's a nasty old tramp, father," I heard the girl who answered the door say to the gentleman whom it pleased me to imagine as cosily ensconced in a fireside chair. "He wants to know if he can get lodgings."

A Rule "Never to go Backwards."

One of the resolutions made at the outset of my excursion was, "Never go backwards." Rather than return to Ogden, I started across the bridge, there being sufficient room for passing trains. There were two structures—one the main line, and the other line used, as I was informed later, by a company which was experimenting on the salt from the beach. Of course, I chose the blind alley, and was soon in a sticky salt quagmire. All the hauling I was capable of failed to extricate the machine, and I had perforce to abandon it for the night. Crossing over to the main structure, I climbed up the embankment and walked along until I came to the first repairmen's camp. Italians the lot of them. Their foreman was in Ogden, and not one of them spoke a single word of English. There were three rough and ready

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WHEN FITTING TYRES FOR EASTER TOURING

beware of inferior makes, which may give endless trouble. Insist on

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buildings—one which was already overcrowded, a hut for some married folk, and a draughty, ramshackle cookshop. Gesticulating proved useless; all the signs on the calendar were lost on my soft-voiced friends from Italy. At last, in despair, I walked straight in and sat down by the smouldering cookshop fire. The men—who no doubt concluded I was an audacious tramp whose "record" if known would make one shudder and grow pale—stared and chattered, but did not throw me out. Presently they left me lord of my domain, and on two chairs I dozed the night away.

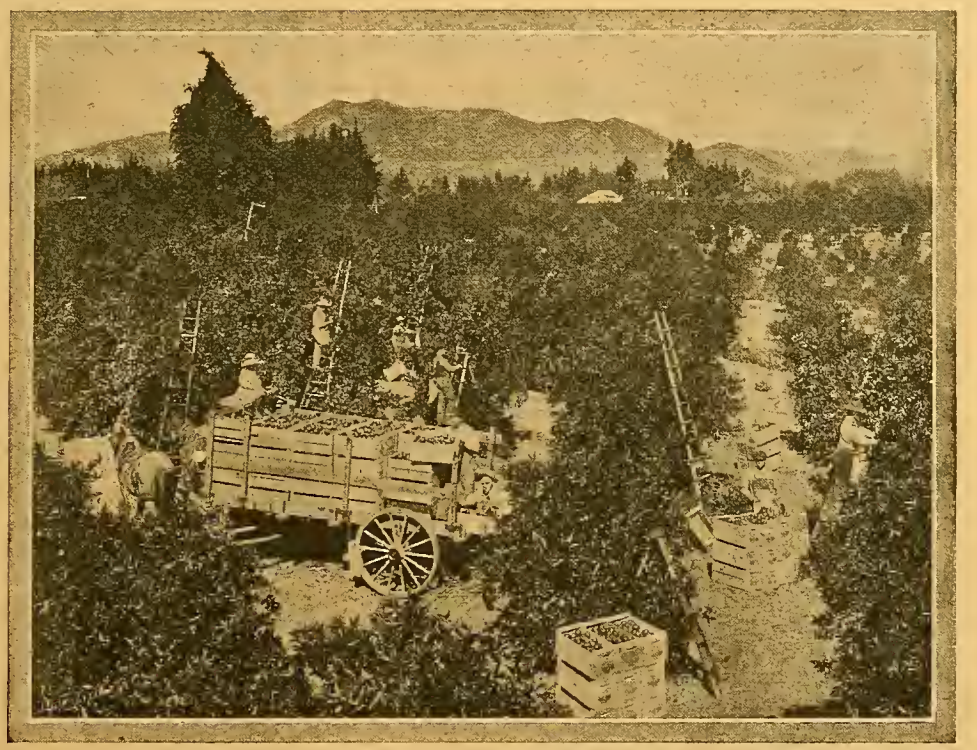
By the aid of planks I extricated the motor before the men were astir. But, early as was my start, engine troubles delayed me so much that at nightfall I was still in "midocean." Another night with Italians—at the Mid Lake Station. The foreman here was kindness itself. He had no spare berth, but gave me the bunk of one of the men on night duty. The cook, too, must have received special instructions. Had there been a trifle more air space—twenty-two of us were crowded in a room about the size of an ordinary double bedroom, and not one of the inmates was smitten with anything so modern as the fresh air fad; the window was jammed down tight—I could have enjoyed a week at Mid Lake. These Italians, I am certain, took me for a railway magnate. Strange to say, I was always mistaken either for a titled nobleman, a half-mad magnate of some description, or a tramp of the criminal class, who to elude the bloodhounds had stolen a motor cycle on which to make good my escape. More frequently—at night invariably—it was the tramp!

The Nevada Desert—A Spacious Workshop.

In looking back over my experiences on the Nevada deserts, there looms above everything a sulky, irresponsive, cumbersome machine. Experience is a good teacher, but the desert is a poor, if spacious, workshop. The parts of the motor of which I carried duplicates appeared to be the only ones that did *not* wear out; cold winds glued the piston; my trip really degenerated into walking to 'Frisco, pushing a motor cycle.

Near Carlton my excursion had a narrow escape from being brought to a sudden and inglorious end by a fast mail train. I was riding between the rails. A strong head wind was blowing, and with it and the throbbing of the motor I did not hear the train behind until the whistle shrieked almost in my ear. The motor was stopped and I dismounted in a second, but in dragging the machine off one of the pedals caught on the high rails. I tugged frantically, bent the pedal, and cleared the line just as the train rushed past. So close a shave was it that the suction took my cap, and my nerves were so shaken that for days afterwards, whenever a whistle blew, I would give a startled jump ready to fly for my life.

The rough roadside accommodation houses were teeming with tramps, devil-may-care ruffians, beating their way to the San Francisco earthquake boom. These hobos, as the Americans call them, never pay railway fares. They know every hole and corner of the States and Canada, and all their travelling they do at night on the roofs of carriages, in freight vans, lying astride buffers, or in the ice boxes of empty fruit and meat cars.



Orange picking in California.

Between Battlemountain and Winnimucca (153 miles) I followed their tactics—joined three of them on a midnight freight train. The motor was out of commission, and there was no repairman in Battlemountain capable of doing the necessary repairs. We loafed in a saloon, watching the roulette players, until a freighter lumbered in at 11.30 p.m. I squared the brakeman, and with the help of my three travelling companions *(pro tem.)*, the machine was quickly and quietly lifted on an empty flat car, and as the train drew out we climbed along the top of the waggons until we reached an empty ice box. There is an ice box at each end of all fruit and meat cars. On account of their cosiness in winter and coolness in summer, they are favourite hiding places with train beaters. Unless the "lid" is propped open they are air tight, and many a tramp has lost his life by being bolted in and his car shunted off at a lonely siding. My companions were quite at home. Two of them soon dozed off, and

Across the American Continent on a Motor Cycle.—

the third told wild tales of adventures and villainies. They were, I gathered, jacks of all trades—all the dishonest and disreputable trades.

Cold troubled me during the last weary stages to Reno, at the foot of the Sierra Nevadas. The smell of winter was in the air, cold winds blew daily; at nights there were biting frosts. At Reno it seemed that, after all, the weather, would beat me. Snow threatened. I worked practically all night priming the motor for

The Final Effort.

Instead of following the rails through the snow sheds and tunnels, I chose the old coach road from Carson City, thirty miles south. The eight miles to the first summit occupied just seven hours. Intermittent drizzly showers occurred frequently enough to keep me soaked and miserable, and the track, which was in a shocking state of repair, was as slippery as a greased floor.

Between the two Sierra Nevada ranges, west of Carson City, there is one of the most beautiful lakes in America, Lake Tahau. I found a ranch house on its shores at night, and long before the sun was up next day was slipping down among the western-slope foothills toward Placerville—my first Californian town. Eldorado, where the first gold was discovered in California, is near Placerville, and I doubt whether his discovery gave the lucky pioneer more genuine satisfaction than I experienced to realise that my journey's end was near.

The Pacific Coast was almost in sight. Sunlit plains, perfect roads, and civilisation in one of the most favoured spots in the world, sent me half delirious with joy. Two short days saw me in the earthquake stricken city of San Francisco—then a wreck, at which (November, three years ago) a myriad hammers were working feverishly building what we now know to be a brighter and better city to stand sentinel and host at the Golden Gate.

Heading West. Snapshot of the author at Chicago, after the first 600 miles had been covered. The motor bicycle was of only 2¼ h.p.

ADVICE TO EASTER TOURISTS.

AS numerous competitions will be held during the Easter week-end, it will be as well to remind motor cyclists who take part in road events that, in the event of their having to dismount to make any adjustment to their machines, it is both courteous and considerate to jack up their motor bicycles as close as possible to the near side of the road. It has been our privilege to watch numerous competitions from the very commencement of the motor cycle movement, and we have noticed on almost every occasion that men who have to stop to effect tyre repairs or other adjustments most curiously persist in jacking up their mounts as near as possible to the centre of the road, thus obstructing other competitors and other vehicles which happen to be on the highway. Very often the offending competitors have excuse, as, owing to the camber of the road, the machine is not so conveniently jacked up at the sides as where it is more level; but we would earnestly request those who are taking part in important road events to consider other users of the road as far as possible. There is yet another point to which we would like to call the attention of those who turn up to witness events which are held partly during the night. Often on the London to Edinburgh run we have noticed crowds of motor cyclists and pedal cyclists at all hours of the night and early morning turn out to watch the competitors go by, with their lamps brightly burning facing directly in the competitors' eyes and seriously hampering them. We sincerely hope that those who turn up to witness the London-Land's End run for the Jarrott Cup, and the London-Edinburgh run (to be held in May), will remember to turn their machines with the headlights facing away from the competitors.

A FASTENER FOR ROUND TWISTED BELTS.

THE belt fastener illustrated by the annexed drawing will especially interest those motor cyclists who use round twisted belts, as it is remarkably ingenious in design. As will be seen, the fastener consists of a couple of conical or tapered plugs, coupled together by a link at their narrow ends. The twisted ends of the belt are opened out and wrapped round the blocks and there secured by conical rings of suitable size to enclose the belt ends and the blocks and to bind strongly thereon when tension is put upon the belt. The greater the tension the more strongly will the rings bind, by reason of the fact that they are drawn towards the larger ends of the conical blocks. The belt fastener shows great promise, since as far as we can tell it is the only fastener which *cannot* pull through.

There is only one fault with metal fasteners of this kind when used with round twisted belts, and that is they make a noise when passing over the pulleys.

Francis Kelway Pope, of Dunedin, New Zealand, is the inventor, but further particulars can be obtained from H. K. Pope, 7, Gloucester Square, Southampton, who has taken out the provisional patent.

Bolton and District M.C.C.

The first event of 1910 will be a three days' tour in the Lake District during the Easter Holidays. Members will leave headquarters at 10 a.m. on the 25th.

Westmoreland M.C.C.

A hill-climbing contest will be held on Friday next on Shap Fell. Meet Low Burrow Bridge 2.30 p.m. Some sixty members are now enrolled, and there are eight special prizes to compete for.

Nottingham and District M.C.C.

The opening run took place on the 12th inst. to Kelham (Newark). The unlucky thirteen sat down for refreshment, the weather being responsible for many absentees. Last Monday evening Mr. R. Vernon C. Brook (hon. sec. Birmingham M.C.C.) gave a very instructive and interesting lecture with lantern illustrations from working drawings, entitled "Variable Gears." A number of questions were afterwards asked and answered.

Ayr and District M.C.

Mr. John Robertson's lecture on the subject of "Magneto Ignition" proved most instructive. A number of electrical experiments were made illustrating the principle of current generation in the magneto. A 1909 and 1910 Bosch model magneto were also shown in motion to illustrate the intensity of the magneto spark in comparison with that of a coil. Interest was added to the evening by a series of limelight illustrations from slides kindly lent by Mr. A. E. Bennett. On Wednesday Mr. Geo. Cocker will discourse on "Two-stroke Petrol Motors."

The A.G.M. will be held in the Photographic Society's Rooms, High Street, Ayr, on Wednesday next, the 23rd inst. Fixtures will be arranged, and other important business discussed.

Streatham and District M.C.C.

The breakdown competition on the 9th inst. proved a great success. The machine used was a 3½ h.p. Triumph, fitted with a Roc two-speed gear and clutch kindly lent by Mr. R. G. Nye. Each competitor was given five minutes in which to locate the trouble, the shortest delay to win. The traps laid by those in charge of the trial showed great ingenuity, water in the carburetter proving the downfall of more than one. C. E. Davis was an easy winner in 2m. 16s., the next best being F. Harvey in 2m. 19⅕s. The judges and timekeepers were H. P. E. Harding, W. Pratt, and R. G. Nye.

Owing to several members having entered in the 500 c.c. class at Brooklands on Easter Monday, the club will hold a run to the track on that day, leaving headquarters at 11 a.m. sharp.

Oxford M.C.C.

Members met under exceedingly pleasant circumstances recently on the occasion of the visit of Mr. Basil H. Davies, who delivered an informal lecture on "Aeroplanes," their construction and the various methods adopted by inventors to overcome air pressure. After giving a short history of some of the men who have made their names famous in the study of aviation, he explained some of the simpler and rudimentary principles which underlay the handling of the aeroplane, this being followed by about fifty lantern slides of absorbing interest. Mr. Davies's complete mastery of the subject was evident, as he kept an appreciative audience spell-bound for an hour and a half, not the least interesting part of his talk being his description of the various types of planes, wind pressures, and the efforts of inventors to cope with them. Then in the matter of locomotive power he pointed to the advance petrol engines had made as a result of experiments with motor cycles and the assistance motor cyclists had been in solving the power problem. Mr. Davies exhibited a number of models which were minutely explained by him.

York County M.C.C.

The fixtures for Easter are as follows: Good Friday, opening run to Richmond (Yorks); March 27-29, Windsor for Brooklands; meet John-o'-Gaunt's Hotel, 8 am.

Southern M.C.

The A.G.M. will be held at Caxton House, Westminster, this evening (Monday). Prior to ordinary business the members will be regaled by two papers. Mr. E. J. Harrison on "Carburation," and Mr. W. J. Jones on "Vulcanisation." The Easter tour is to Eastbourne. The new secretary is Mr. Arthur J. Vickers, 42, Theatre Street, Lavender Hill, S.W.

Newcastle and District M.C.C.

The following competitions have been arranged: Good Friday, team trials to Richmond meeting; six riders to constitute a team. April 16th, slow hill-climb at Benton Bank. May 1st, non-stop run with a hill-climb at finish. June 4th, all night run to Edinburgh and back. July 31st-August 1st, two days' reliability trial for N.S.U. Cup. September 4th, hill-climb.

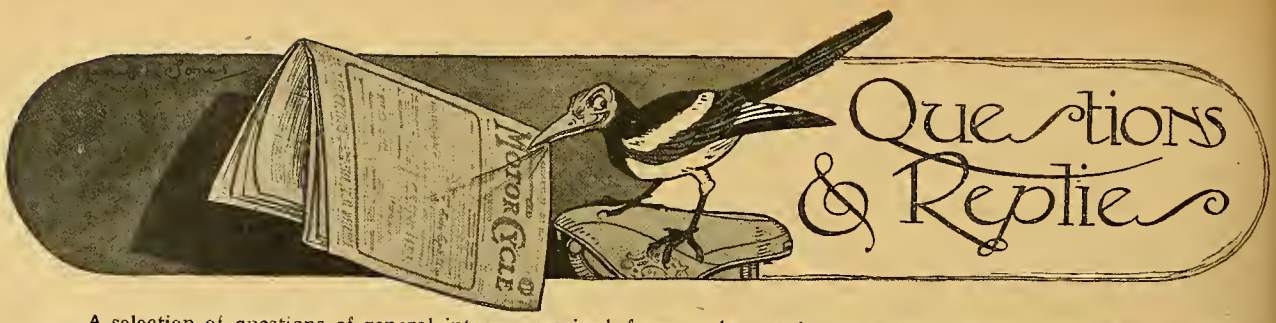
Sutton Coldfield A.C.

The first competition takes place on Saturday, April 9th, when it has been decided to hold a speed-judging competition.

Herts County A.C. (Motor Cycle Section).

Last year the ancient town of St. Albans possessed a motor cycle club of its own, but recently the St. Albans and District M.C.C. decided to throw in its lot with the Herts County A.C., and thus help to make the motor cycle section of that club strong and representative. It was to celebrate the amalgamation that Saturday, 12th March, was fixed upon for the opening run, starting from the new headquarters, the Red Lion Hotel, St. Albans, *viâ* Colney Heath, Hatfield, Welwyn, and Stevenage, to Baldock and back, a distance of about fifty-four miles, club certificates being awarded to those members completing the journey out and home within five minutes of schedule time. The weather was about as bad as one could imagine, a fine rain falling until within a few minutes of the time fixed for the start, when the following hardy enthusiasts were sent off by the timekeeper, Mr. D. K. Hall: W. Cooper (3½ h.p. Bradbury), F. G. Beard (3½ h.p. Scott), W. Pratt (3½ h.p. P. and M. with sidecar), P. G. Batchelor (3½ h.p. Triumph), D. G. Nott (3½ h.p. Brown), C. Cather Cooke (3½ h.p. Triumph), and A. E. Deacock (2½ h.p. Wanderer). The roads were in a very heavy and greasy condition, particularly between London Colney and Hatfield. The Scott had the misfortune to puncture between Hatfield and Welwyn on the outward journey, and the Brown broke an inlet valve at Stevenage, whilst Deacock, on the 2½ h.p. Wanderer, had an encounter with a dog at Hatfield and came off second best, the successful riders being Messrs. Cooper, Pratt, Batchelor, and Cooke. At the conclusion of the run a large number of members, many of whom had since put in an appearance, sat down to tea, and later to a smoking concert which was presided over by Mr. C. Lowery. During the evening prizes won in 1909 were presented.

FURTHER CLUB NEWS ITEMS APPEAR IN THE SUPPLEMENT



A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Position of Sidecar.

My mount is a 6 h.p. two-speed N.S.U. with Montgomery rigid sidecar (left). I have had an argument with a motorist friend as to which is the correct side for the sidecar attachment. It was originally on the right, and I have had it changed to the left-hand side. Which, in your opinion, is the best; and why do we see more sidecars on the left rather than on the right-hand side?—J. E. L.

There is no doubt that the correct side for the sidecar in England is the near side, so that the passenger is protected from the traffic met on the highway. On the contrary, on the Continent the sidecar is fixed on the offside, as in most Continental countries people drive on the right-hand side of the road. Occasionally one sees sidecars on the roads in England fitted on the right-hand side, but in most cases this is due to the fact that the usual method of mounting by the pedal with the left foot is rendered possible.

Instruction Books on Motors.

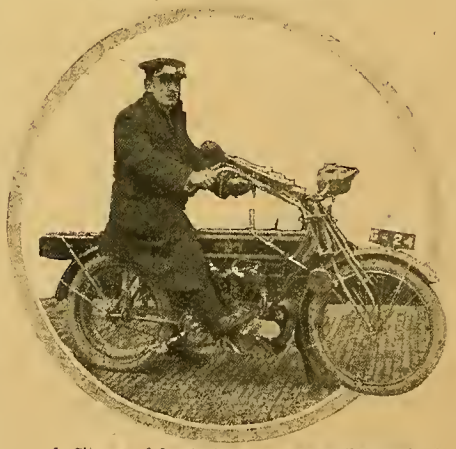
(1.) I am ordering a four-cylinder T.A.C., and not being an expert in motor mechanics, I want you to tell me of any book on motors that would help me in the management of a cycle like the 7 h.p. T.A.C. The motor shops in this country are few and far between. I would like to be able thoroughly to understand the working parts of a motor of the above type, so as to be quite independent. (2.) Can you also advise me as to the best sidecar to use with a machine of this sort?—P. R. P. (Perak, Federated Malay States).

(1.) The T.A.C. motor bicycle rather more closely resembles a car than a motor bicycle, and, in consequence, we should recommend you to buy "The "Autocar Handbook" and "Motor Cycles and How to Manage Them." The price of the former is 2s. 6d. and the latter 1s., postage for the two 6d. Of course, in "The Autocar Handbook" you will find a good deal that does not concern the machine, but the general principle of the four-cylinder engine and clutch, change-speed gear and worm drive, are described in full. (2.) The makers of the bicycle you have selected supply a sidecar attachment to order. If you require a special type, all the standard patterns could be amended to fit.

A Light Four-Wheeler.

I intend building a light runabout (four-wheeler). (1.) What horse-power would you suggest with a variable gear between 3 and 9 to 1 (obtained by V belt and two expanding pulleys on engine and counter-shaft respectively)? (2.) Would ordinary strong sidecar wheels be strong enough for the work (two-seater)? Transmission by V belt to counter-shaft, thence by central chain to rear wheels. (3.) Would a differential be necessary? (4.) Do you advise air or water-cooled cylinders? (5.) What is the largest size of Whittle belt made? (6.) Would 8ft. wheelbase and 4ft. 6in. broad be about the right dimensions?—W. G. A.

(1.) We should suggest a 5 h.p. or 6 h.p. engine, especially if it is to be used for passenger work. (2.) Extra strong sidecar wheels should be satisfactory, but we should require to know more particulars as to weight to advise you definitely. (3.) No, a differential would be desirable, but not absolutely necessary, as you could overcome the difficulty to some extent by driving on one wheel. (4.) If you are going to build the machine up as a miniature motor car it would be much better to fit a small differential and water-cooling. (5.) The largest size Whittle belt made is 1in. (6.) The dimensions you give would be about right.



A. Citroen, of Amsterdam, hon. sec. of the Dutch M.C.C., on his new mount—a 6 h.p. twin Matchless-J.A.P. Mr. Citroen speaks in the highest terms of his motor cycle, and especially admires the flexibility of the engine and the comfortable riding position.

Southampton to Birmingham, avoiding London.

It is my intention to ride this year from Paris to Birmingham. Would it be possible to land, say, at Southampton, and ride from there to Birmingham without passing through London? Are the roads as good as those leading to the capital, and if so, what is the route? Please also give the return journey, which I suppose would have to be *viâ* London and embark at Newhaven to reach Paris *viâ* Dieppe.—A. C.

You are able to travel direct to Birmingham without touching London by an almost entirely straight road, as follows: Southampton, Winchester, Whitchurch, East Ilsley, Abingdon, Oxford, Banbury, Warwick, to Birmingham. The return journey would be to Oxford as outward journey reversed, then Henley, Windsor, Guildford, Horsham, Brighton, to Newhaven. The roads are good but difficult to follow between Henley and Guildford.

A Motor Cycle for Every-day Use.

(1.) Do you consider it possible after a little practice to ride twenty-five miles every day to business, the road being fairly flat and of very good surface, allowing two hours in case of breakdowns, there being one town passed through (viz., Tewkesbury) eight miles from the end of the journey? (2.) Would it be possible to obtain a second-hand machine suitable for this purpose for from £10-£12? (3.) As a novice would a 3 h.p. or 3½ h.p. heavyweight single-cylinder, magneto ignition machine be suitable? (4.) What would you estimate the cost per week (Sunday excluded) in petrol, etc.?—F. J.

(1.) There is no doubt whatever that a novice could ride twenty-five miles each day to business, provided he is equipped with a good machine and takes an intelligent interest in it. (2.) You could not expect a very good machine for the price named. If you increase the amount to about £20 you would get a second-hand of first-class make. (3.) 3 h.p. would suit you well, but 3½ h.p. machines are the most popular. (4.) It is difficult to estimate the cost, but we should imagine that you could easily run the machine for 7s. 6d. per week, provided, of course, you do not have to go in for any expensive renewals or replacements.

ROM

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PEESWEEP HILL, 12th MARCH, 1910.

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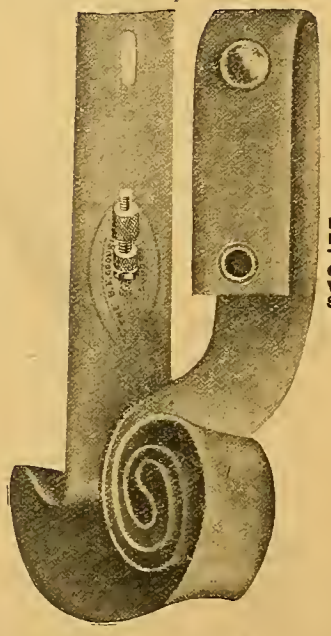

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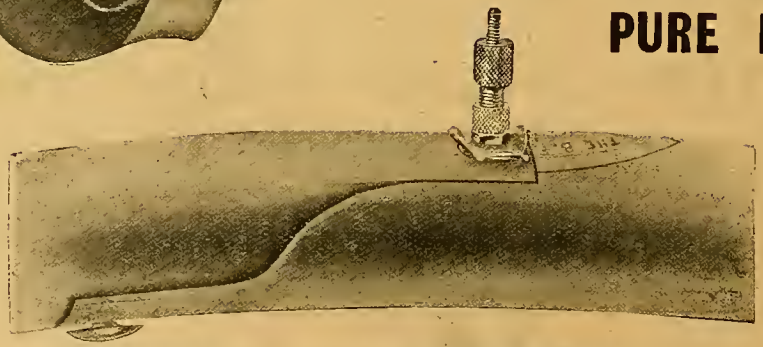


BUTTON FASTENED THROUGH SLOT.

SHOWING TUBE INFLATED. NOTE ACCURATE FIT.

Respecting a Sidecar Attachment.

(1.) Is a 6 h.p. twin sufficient, single-geared, for sidecar work? Combined weight of passenger and driver, 19 to 20 stones. (2.) What would be the most suitable gear for ordinary give and take main roads? (3.) Is it necessary to pay a licence for the sidecar as well as for bicycle? (4.) Must the rear number be illuminated? (5.) What should be the approximate petrol consumption with the load mentioned? The engine is a J.A.P., the carburetter an Amac with handle-bar control.—H. R. B.

(1.) The power is certainly ample, but with a single gear you would often find the want of a lower speed, especially when starting on a gradient or when an exceptionally steep hill is met with. (2.) We should recommend about 5 to 1, which is really too low for such a powerful machine. It would enable you to get up most hills. (3.) The present 15s. licence (which may shortly be increased to £1) covers both the bicycle and sidecar. (4.) It is not compulsory to light the rear number when a sidecar is used, but it is advisable to do so for safety's sake. (5.) About fifty or sixty miles to the gallon.

Is an Engine More Powerful when Cold?

One frequently sees it stated that a motor cycle will climb a steep hill better when the engine is cold than when it is hot. And for this reason we continually read of competitors in trials stopping at the foot of test hills in order to cool their engines before making the ascent. My experience, however, is exactly the reverse of this. Can you explain? My engine is a White and Poppe, 1907, 3½ h.p., and I always find that it will pull much stronger up hill after it has been running for six or seven miles, and is consequently nicely warmed up, than it will when cold. I have proved this over and over again. On one particular rise of about 1 in 13, which I have to ride almost daily, I invariably have to give pedal assistance if the engine is cold, whereas I can go up it unassisted and at a good pace if I strike it after the machine has been running for half an hour or so. I shall be glad to know the reason of this, and also whether it denotes any defect in my engine.—(Rev.) G. C. A.

There is nothing extraordinary in either case. Some engines heat up much more quickly than others, and, consequently, it benefits them to cease running, and when they assume a more normal temperature they will climb better. With your particular engine it seems that this is a very efficient one, and cools very rapidly, so that despite the fact that it has been running for some distance, the temperature it attains suits it best, and, in consequence, it climbs better than when cold. Theoretically, of course, the hotter the engine is the better it should run, but, unfortunately, in actual practice this is not the case. The behaviour of your engine does not denote any defect, very much the reverse.

Accumulator Discharging Quickly.

My machine is a second-hand one; in perfect condition, plain coil and accumulator ignition, make and break contact breaker, and Oleo plug. The accumulator is a new 20 a.h., only charged three times. I have had it examined, and assured that nothing was wrong with it. Petrol supply quite clear, and the charge gets to the cylinder all right. My last ride was sixty miles out, which I did without one misfire or involuntary stop. On reaching my destination I removed the accumulator from the tank (as is my usual practice), it then showing full voltage on voltmeter. The following morning I started out for a run. Everything went all right for about a mile, when misfiring commenced, and eventually at about two miles it stopped altogether. I went carefully over everything, and finally tested the battery and found it was only showing 2½ volts. This I could not understand at all, as I could find no trace of any short circuit that might have run it down, and whilst it was out of use it was put away out of reach of anything and not tampered with. I at once took the battery and had it recharged, and the following evening started on my return journey home. The battery showed full voltage on starting, but after I had got the same distance as before (two miles), exactly the same trouble occurred. The battery now showed 2½ volts on one cell but nothing on the other. I have tried different accumulators, with the same result. —B. H.

Your trouble is certainly a mysterious one, and we should be inclined to suggest that the accumulator is not very tightly packed in the compartments of the tank, gets jolted about, and short circuits against the top of the tank. There certainly must be a short circuit somewhere which you are unable to locate, otherwise the different accumulators would be unlikely to behave in this manner. We do not think it is the coil which is at fault, but you might get this tested with a large ampèremeter to show what the consumption of it is. It is always advisable to carry a spare accumulator.

Faulty Carburetter Adjustment.

The power of my 4 h.p. tricar is erratic—sometimes splendid, other times will not take hill on low gear usually taken on top (all in, say, ten minutes' running). Petrol floods over top of mixing chamber on to supply pipe at times, and at other times there appears to be none at all, and if the Longuemare carburetter is "tickled" it sounds empty. After a time petrol appears to resume normal level. With jet removed, the petrol stands about one-eighth from the top of tube. Previously I ran ordinary air full open, extra air inlet half open; now it seems as though it will not have any air one minute, and wants all I can give it next.—G. W.

We should be inclined to think that the trouble is in the petrol supply or carburetter, there being something in the tank or petrol pipe temporarily obstructing the flow. It is also possible that the needle valve stem of the carburetter may have been bent and sometimes sticks, not allowing sufficient petrol to get through.

Reproduction from a picture postcard received last week by *The Motor Cycle*. The wording on the back is: "Viele Grusse von 3 Deutschen Motor-radfahrern, alle Leser Ihrer geschatzten Zeitung sendet. Fr. Reiser." (Many greetings from three German motor cyclists—all readers of your much-appreciated paper).

READERS' REPLIES.

Curious Loss of Compression.

Perhaps the following may be of use to "H. E. A.": At the last show I saw an agent for a lightweight motor cycle showing off its compression. I was struck by the time he could stand on the pedal, and so I looked closer. The cause was, his hands were on the handle-bar and his little finger on the back wheel brake! After some time, skilful manipulation showed the compression leaking, as is usual! I do not infer that the person who sold the second-hand machine did this, but just pen these lines to show one of the tricks of the trade!—BAIN.

Inspection Lamps.

I was guilty of a wee *lapsus calami* on page 185 in my suggestion for a simple inspection lamp fitment for use with electric headlamps. The two yards of flex should be fitted with a plug adapter at one end, and a bulb-holding socket at the other end. This device is much easier to fit when the headlamp is wired on the double pole principle, and standard fittings for application to single pole lamps are not at present upon the market.

The Scottish Motor Cycle Trials.

I hear unofficially that this year's Scottish Motor Cycle Trials, organised by the Edinburgh M.C.C., are likely to take place the first week in June, and I hope that this year many English amateurs will support them with their entries. The special advantage of competing in such a trial, as opposed to a private tour over the same ground, is that the route is picked by men who know the country, avoids police traps as far as possible, and includes the maximum of interesting scenery. In addition one is constantly in the company of real good fellows, instead of riding alone or with a frequently disappearing companion. All arrangements are ready made for one, and at specially cheap terms, which is a real blessing where Scottish hotels are concerned; and the sporting element adds an object and an interest to the tour.

An Olla Podrida.

One of my most practical correspondents sends me a budget of interesting notes. Speaking of the "wet blow back" from the air holes of a carburetter, he contrived to convert his into a "dry blow back" by doing away with the extra air intake on the carburetter, and substituting an extra air inlet on the inlet pipe close to the a.o.i.v. Why this should effect an improvement is not at all easily understood—on paper the blow back should still have been wet in quality, and increased in quantity: however, he says it further reduced the petrol consumption and kept the engine cooler. He is an enthusiast on the geared-down pulley, permitting a huge engine pulley. He says the belt on his 1¾ h.p. has in consequence of the geared-down pulley covered 7,000 miles in all weathers, and looks good for as much again. For a home made non-skid he recommends strips of horse-hide attached in zigzag fashion at intervals round the tread of the back tyre, but he omits to say how they are attached, and how the stitches or rivets are prevented from chafing the inner tube; possibly he has no rim brake, and simply lashes them round the rim between the spokes. The strips of hide are ½in. wide and $\frac{3}{16}$in. thick.

An Ancient Tip Repeated.

The recent sight of several perspiring novices wrestling with misfiring twin-cylinders induces me to reprint a very ancient tip, which is the twin-cylinder man's right-hand friend. When the running of a twin-cylinder engine is unsatisfactory, the first test is to run each cylinder separately, which is easiest done by starting the engine up with the machine on the stand and "shorting" each plug in turn by laying the blade of a wood-handled screwdriver from the sparking plug terminal to any convenient metal portion of the machine. This test shows at once whether one cylinder is weaker than the other—a fault responsible for a tremendous loss of power—or which cylinder is misfiring, or not firing at all. Incidentally it is of great help in locating a fault. If either cylinder will run really well, it is probable that those portions of the mechanism which are common to both cylinders, *e.g.*, the magneto, accumulator, or carburetter, are in good order, and the fault presumably lies in some detail peculiar to the missing cylinder, its plug, or valves, or compression. I have just had a singular example of those rare instances in which this test is misleading. A Moto-Rêve was misfiring slightly on the road. Cutting out each cylinder in turn, I found they both fired perfectly when run separately, but the engine as a whole went dot and carry one with both cylinders firing. The explanation was an obstruction in the flow of petrol in the carburetter, which, so obstructed, supplied sufficient gas for one cylinder to fire on, but ran almost dry with two pistons sucking at it simultaneously.

Weight of Twin-cylinder Touring Models.

When we consider that a 5 h.p. twin-cylinder machine seldom offers an increase of more than 1 b.h.p. in power over the so-called 3½ h.p. tourist machines it is saddening to reflect that it usually weighs about 40 to 50 lbs. more than the single-cylinder rival. I have owned touring machines of 3½ h.p. which weighed under 160 lbs., but I have never owned a good 5 h.p. twin-cylinder touring model which weighed less than 200 lbs., and a good number weigh more. No keen enthusiast who has once owned a good 5 h.p. twin regards a return to a 3½ h.p. single as anything but a recantation and a falling from grace, yet many are guilty of the change, for the simple reason that, owing to its increased weight, the theoretic advantages of the twin-cylinder are largely discounted in actual use, especially in hill-climbing. A new twin-cylinder recently placed on our market weighs considerably less than the average twin, and has caught on chiefly on this account. In many respects it conflicts violently with our notions, but it admittedly offers the special advantages of a 5 h.p. twin without the increase of weight, to which we had grown accustomed in machines of its power. When will some bold English maker step forward and do for the home-made 5 h.p. twin what others have already done for the home-made 3½ h.p. single, viz., increase its efficiency to the uttermost and simultaneously pull back its weight to a lower figure? When that individual at last arrives on the scene he will find a greedy and eager public surging around him ready to unload much cash.

MOTOR CYCLES FOR THE COLONIES.

IT is with pleasure that I read *The Motor Cycle*, and especially the comments of "Ixion" and the hub-bub they sometimes stir up. My motor cycling experience is not very lengthy, dating from 1902 only, but I have ridden in all parts of the U.S., Mexico, and Canada, and so wish to chime in and add my O.K. to "Ixion's" article which appeared in the issue of January 10th regarding machines for the colonies. I have owned, ridden, and seen many English and foreign machines, and lack of road clearance is one very great fault. Most of the American machines are made with a bent down tube which goes under the engine. This certainly does not look as well as the "all straight tube" construction of English machines, nor is it as strong, but how much better is a dented tube than a badly cracked crank case? Even a 5in. clearance is not always sufficient—a 6in. or 7in. is nearer correct, but that either makes the frame too high or else cuts down the tank capacity. So American makers put a protecting tube under the motor base.

Tank Capacity and Engine Economy.

Tank capacity and engine economy are also items for consideration. Heavy, rough, and hilly roads eat up petrol at an alarming rate, as all riders know. This is bad enough when the gasoline costs from 20 cents (10d.) to 75 cents (3s.) per gallon, but add to this the fact that sometimes very great distances—300 miles often—have to be covered before the tank can be replenished, that is why capacity is so important.

"Ixion's" comments on "spills" and road conditions are accurate and to the point. To illustrate: While on a trip in the foothills early this winter, my machine skidded while crossing the Fallen Timber River on an ice-covered dilapidated bridge, which had no hand rails, and plunged 40ft. down in a tangled mass of huge fallen trees, and finally into the water! Good-bye, motor cycle. Fortunately I saved myself by a lucky grab, but it was a near shave.

I have seen the roads up here during the rainy season so muddy that it was hard work for a 3,200 lbs. team of horses to haul an empty waggon over them, and four and six-horse teams had hard work to haul even a moderate load.

On the road from Chicago to South Bend, Ind., *viâ* Westville, I saw a rider wreck a well-known English single-cylinder machine (Triumph) by hard riding alone. This machine certainly was one of the fastest and finest single-cylinders I have ever seen, but the light bars, low engine and magneto position, and light rear stays could not stand the terrific pounding of the rough and sandy roads. The spirit was willing but the flesh weak. The motor was game to the end, and ran well with a cracked crank case and the rear tyre rubbing the stays. The machine was not "fall proof."

Alberta Winter Toggery.

To change the subject rather abruptly, I imagine if I should put in an appearance in London during a cold snap with my Alberta winter motor cycling togs on I would cause a laugh, and maybe get "pinched." Over a heavy corduroy suit of clothes I wore a pair of "chaps," a short heavy fur coat, fur cap and gloves For foot gear, two pair of woollen socks under a pair of long heavy German socks, and over all a pair of Indian fur-lined "mushes." Yes, the outfit certainly was warm, but quite cumbersome. Looks, of course, were not to be considered, for it is often 30° below zero, and not infrequently from 50° to 65° below! The roads are usually at their best during the winter, and the motor runs very well. The lightest spirit only can be used, and the carburetter must be protected.

When once the farmers in this district wake up to the utility of motor cycles, there will be a fine field for some well-known, reliable, and enterprising firm.

A PLEASED READER (Alta, Con.)

AMERICAN RIDERS AND THEIR AMATEUR STATUS.

IT appears that if certain officials in the States have their own way there is very little hope of any American amateur riders coming over here to ride in the T.T. Race and other competitions, as they dare not do so for fear of losing their American amateur status.

Some time ago Mr. Betts, a one time president of the F.A.M., formed an alliance between the F.A.M., A.A.U. (American Athletic Union), and the A.C.U. (American Cyclists' Union), by which motor cyclists were classed with athletes as regards their amateur status. This alliance cannot very well be broken, but the F.A.M. hopes to be able to pass a rule which will enable American amateurs to take part in British competitions. Dr. J. P. Thornley, chairman of the Competitions Committee of the F.A.M., thinks that if the Auto Cycle Union could see its way to adopt some sort of classification that would exclude any man who had ever competed for cash, and called this class an international class, it would enable him to introduce a rule at the summer meeting of the F.A.M. that would subject riders to the regulations of the ruling bodies of the countries in which they compete.

We are afraid no such rule is possible, as it would exclude all Brooklands competitors who have accepted cash instead of trophies, and also all T.T. competitors.

In the early days of motor cycling Sir Charles Friswell's well-known firm was agent for the Peugeot motor bicycle, and one of these machines was ridden in the first A.C.U. trials which took place in 1903. Now Messrs. Charles Friswell, Ltd., have instituted a special motor cycle department in their spacious premises at No. 1, Albany Street, W., which is in the capable hands of Mr. W. H. Hayes, who has for many years followed every phase of the motor cycle movement. A large room on the first floor has been set aside as the motor cycle showroom, and in it such well-known makes as Bat, Brown, Rex, Kerry, Wolf, Magnet, etc., will be on view, so that a permanent motor cycle exhibition may almost be said to be continually in progress there. Accessories will be stocked, and repairs will be executed. Agents will be able to make appointments with their clients at these showrooms, and special offices are provided in which they may transact their business. Owing to the amount of space at their disposal, exceptional facilities are offered by Friswell's to club secretaries for assembling for trials and competitions.

WATER COOLING ON MOTOR BICYCLE ENGINES.

By CYCLOMOTOR.

BEFORE the advent of motor bicycles, or, to be more correct, when the pastime was in the experimental stage and 1¼ h.p. front-driven Werners, with the engine forward of the handlebar, and 1¼ h.p. Minervas were just opening up a new era, we of the early brigade of motor cyclists had, from sheer experience of cause and effect, arrived at the decided opinion that for low gears, such as were necessary on tricycles and quads, water cooling was essential. Many engines were consequently converted to semi-water cooling by fitting water-cooled combustion heads. I write semi-water cooling for the reason that it was only the combustion heads which were converted, the air-cooled cylinders, with their radiating fins, being retained.

Air-cooled Marvels of Efficiency.

There is no question that these old tricycles and quads, fitted with air-cooled engines varying from 1¾ h.p. to 2¾ h.p., fitted on the rear axle and driving direct on to the axle by pinions and spur wheels, and weighing anything between 2 and 4 cwts., were fairly efficient vehicles. They were not fast, in view of the load and the necessary low gear (roadsters were usually geared about 8 or 9 to 1); but they were air-cooled marvels of efficiency. It was only very bad and long gradients that stopped them, and it was in order to obviate the troubles of overloading on steep hills that the fashion set in for water-cooled combustion heads and two-speed gears.

With one or two exceptions the two-speed gears of those days were not an unqualified success, as they were usually unmechanically supported, and absorbed a great amount of power. But if the two-speed gears were somewhat a failure mechanically, water cooling was an unqualified success.

Ancient and Modern Engines compared.

Good as were these little air-cooled engines, semi-water cooling rendered them wonderful little performers, which feared no reasonable hill in the country.

Load for load and gear for gear, I doubt if any modern engines could show better results.

That water cooling had such a useful effect on these old tricycles and quads seems certainly to point to the fact that for motor bicycles under like conditions a similar result would apply. The water consumption was low, averaging in my case about an eighth pint per hundred miles.

The majority of modern single-geared motor bicycles, however, are run under somewhat dissimilar conditions to the old tricycles. The former are higher geared, and, given the speed, air cooling provides almost all that is necessary, and it becomes merely a question of effective cooling by lubrication when the load becomes heavy on gradients. When a two-speed gear is used, and also for medium-geared motor bicycles, there is little doubt in my mind that greater efficiency would be obtained by a useful combination of air and water cooling.

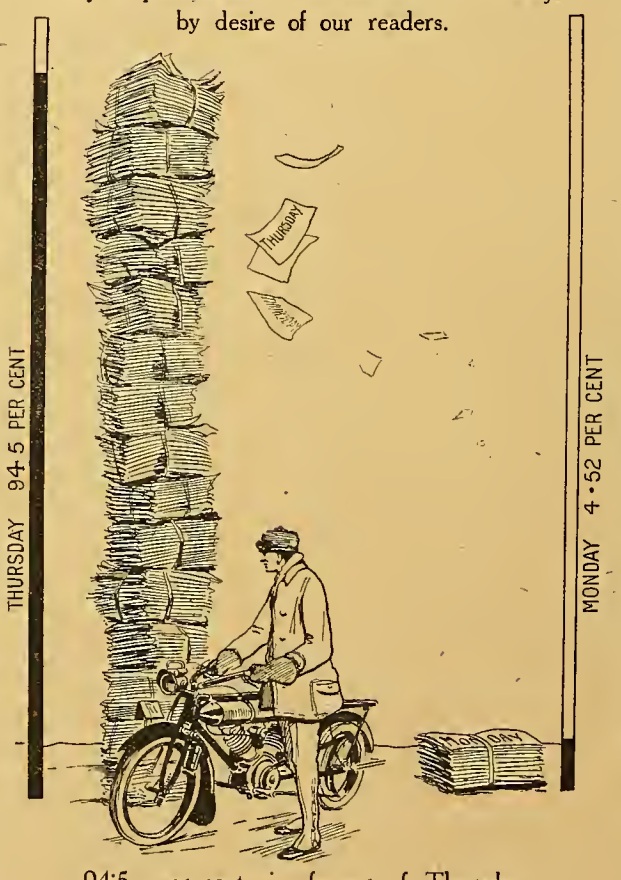
In this respect I recall a motor bicycle which I rode in 1905—a 2¾ h.p. Bruneau, manufactured in France and handled in this country by Hobday Bros., of Great Eastern Street, E.C. It was a most practical and unique design for that period. The engine had a water-cooled head, with thermo-syphon circulation; the water compartment was situated in the front portion of the tank, and held four litres (seven pints). At each side of the tank were vertical gilled tube radiators. A single chain encased in an oil bath was the method of transmission, the one chain being used for starting and pedalling the machine, as well as for transmitting the power from the engine to the road wheel. A good spring front fork was also fitted.

I did not have the pleasure of a long trial, but there was no doubt about it, the Bruneau was the embodiment of efficiency. Hills on which air-cooled machines of similar horse-power were jibbers were a mere nothing to the Bruneau. It was surprising what that 2¾ h.p. engine could do, and it could have done even better had it not been a single lever control, viz., spark, throttle, and exhaust lifter combined—a method not conducive to obtaining the best results from the engine. The absence of loss of power in transmission, owing to the chain drive, no doubt contributed also in some measure to its efficiency, but I attribute it chiefly to the water cooling.

MONDAY OR THURSDAY?

THE RESULT OF OUR REFERENDUM.

Day of publication to be altered to Thursday by desire of our readers.



94·5 per cent. in favour of Thursday
4·52 „ „ „ „ Monday
·98 „ suggesting other days than Monday or Thursday

Water Cooling on Motor Bicycle Engines.—

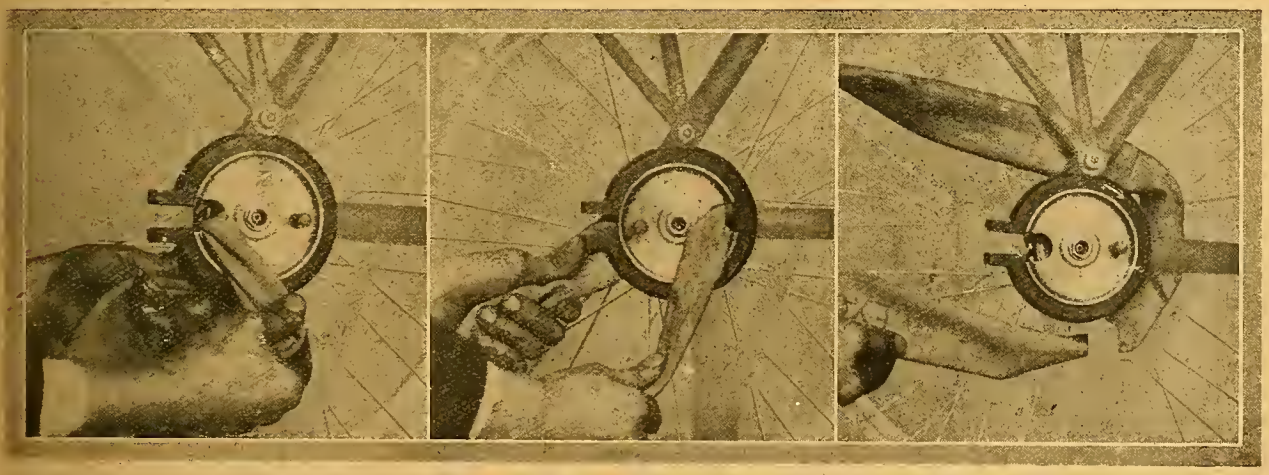
Ease of starting with longer life for valves no doubt followed in due course, but I did not have the machine in my possession long enough to gain experience on these points. It was a great pity that the Bruneau was not actively pushed on the British market; but about the time of its advent the motor cycle business was somewhat depressed, as the industry was suffering from a mild slump, owing to innumerable firms rushing into the business and either overproducing or making unsuitable machines, which the market could or would not absorb. In consequence the Bruneau never got a show in the British motor cycle world. At this time, also, there were other water-cooled motor bicycles on the market, which would have doubtless met with some success, but the slump made their exponents doubtful as to financial results. The Bruneau machine is still sold in France. One bicycle which I well remember, and which was probably frightened off the market by the poor outlook, was made by Green's Patent Syndicate of Bexhill. It was water-cooled by means of a detachable copper jacket, arranged around a specially designed cylinder, and from reports of trials made by the manufacturers did exceptionally well. I have also read letters published in the correspondence pages of this journal speaking well of this engine. It is undoubtedly a good thing, as has been evidenced by the success of similar engines for aeroplane work. The Iris motor bicycle was another water-cooled machine.

Water-cooling Efforts Five Years Ago.

The efforts made in 1905, both air and semi-water-cooled, were perhaps a little before their time, but they were none the less a distinct advance in catering for those motor cyclists who prefer a moderate power with the greatest moderation in the consumption of lubricating oil. I give prominence to the lubricating oil consumption because to my mind air cooling at moderate speeds with heavy loads means also oil (lubricating oil) cooling, and water-cooling seems to be the cheaper and the better proposition, as water is cheaper than lubricating oil.

But, on the other hand, for the speedy brigade with sufficient engine power to maintain a high speed on gradients and under heavy loads, air cooling gives satisfaction, and is minus those winter troubles connected with water-cooling, in the form of cracked water jackets and cylinders, and such like annoying and expensive items. Moreover, troubles with water pipe connections and radiators are not unknown even in summer.

A NOVEL TYRE AND TUBE CHANGING DEVICE.



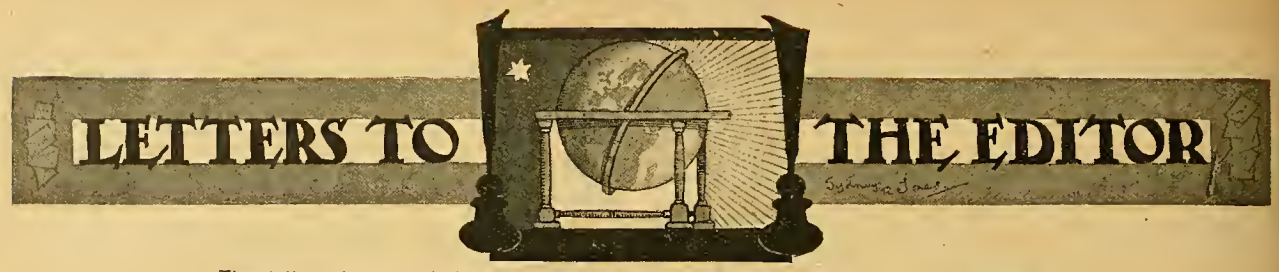
The first operation after removing the bolt clamping the outer ring.

The disc and tube after being rotated a half circle.

One turn of the disc. The tube inside the chain stays ready for fitting.

AN interesting novelty in the shape of a tyre and tube-changing device is clearly shown in the above illustrations. A description of the device is hardly called for, seeing that the photographs are practically self-explanatory, but we may point out some of the advantages of such an arrangement. As every push-cyclist and motor cyclist knows, it is a long operation to replace a cover and endless tube owing to the necessity for removing the wheel and the several connections. This, of course, was the immediate reason for the introduction of butt-ended and detachable air tubes. The clever device illustrated, which is the subject of a recent patent, has been introduced by Mr. Jas. Nuttall, 12, Hillfield, Farnworth, near Bolton. The disc to which the wheel spindle is attached is rotatable in the fork-ends after removing a clamping bolt. The tube or cover is inserted in the groove provided, and the disc is then rotated, causing the tube to be gradually worked inside the forks, without the necessity for undoing any further connections. The air tube may be removed by a reversal of proceedings. The inventor is not at present in a position to make fittings, but is willing to dispose of the invention, or grant a licence for its manufacture.

With reference to the article on rotary engines in our issue of the 7th March, we have just received a communication from Mr. Lamplough, the inventor of one of the rotary engines described, and he informs us that his firm are putting an improved model on the market. The new engine works on the two-cycle principle, and bevels have been dispensed with, an oscillating ring being used instead.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Motor Cycling for Health.

[4644.]—In the issue of December 13th, 1909, is a paragraph headed "More Halfpenny Paper Twaddle," concerning motor cycling and health. I have been a push-cycle rider for twelve years. About twelve months back I took to a motor cycle, and practically gave up the push-bicycle. I ride my motor across country and on very rough roads. The resultant effect on me should be that (according to the author of the article you criticise) I am a nervous wreck; whereas, when I gave up the bicycle I weighed 10 stones. I now weigh 11 stones, and feel better in every way. As regards athletic work, I have not been beaten at tennis, I have won a bat for top average at cricket (batting), and won odd trophies military target shooting, during my motor life.

I do not care about exploiting my performances, but do so in the hope of convincing any doubtful riders that the writer of "Men and Beasts" is "talking through his neck."

South Australia. CHAIN DRIVE.

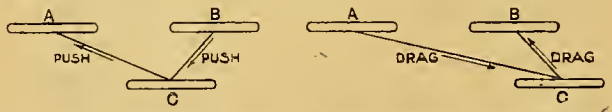
Steering of Sidecars.

[4645.]—*Re* steering of rigid sidecars, perhaps the following tip will be useful to fellow readers. I find the simplest way to learn a beginner is to sit in the sidecar and let the learner start up engine and run alongside for a little while, instead of attempting to mount, when he will quickly learn that the combination has to be steered, and not balanced.

E.S.

[4646.]—I was interested to read the letter of my friend Mr. J. H. Lester [4609] in your issue of February 28th, and to see his instructive diagram as to the probable cause of the trouble experienced by me in steering my sidecar combination to the near side. Mr. Lester is lucky in that he travels on four wheels, though he is perfectly right where it is simply a question of steering round corners; but I venture to think that the "cranked" frame is made by design, as it appears to be, in order that the whole combination will travel in a straight line with the least amount of interference with the front steering wheel. As the chief amount of work to be done is practically in a straight line, this is a more important adjustment than one for turning corners to the near side.

My explanation of this is best explained by the following illustrations, though I am open to correction by others more experienced:



In the above illustrations I have exaggerated the position of the wheels to make my meaning clearer.

In fig 1, the wheel C being in front of B will tend to steer that wheel (B), and as B is pushing C then C will be inclined to push A out of the straight.

In fig. 2, B is dragging C, and being the leading wheel of the two will tend to steer C; as a result C will drag on A, pulling A out of the straight.

The question now arises, at what point between A and B should C be placed in order that A may run straight without wobbling, and as in my case C is 2in. in advance of B, and slightly pointing in to A (see the issue of February 14th), which gives the best running on the straight road, A running quite true with a light touch on the handles.

I am having an adjustment made to carry out Mr. Lester's idea, and will see how this affects the straight running. At present "I hae me doots." HERBERT PORTER.

The Motor Cycle in the United States.

[4647.]—I have read with interest some of your disgusted belt users' letters, including Mr. J. Garvey's. Strange to say, these complaints of belt drive mostly emanate from America, where chain-driven machines are in favour. No one for a moment would believe that the leading manufacturers in this country would stick to belt drives if rubber belts went wrong every five hundred miles, as mentioned by some of your correspondents.

Without wishing to enter into a controversy as to which is the best drive, I can only say from practical experience, both as a maker and user of belts, that the instances given are all contrary to my experience as to the life of a belt, and can only conclude that your correspondents have used either inferior rubber belts or perished ones. As a maker, I have numerous cases where both rubber and leather belts have run over 6,000 miles; in fact, I do not know of a single case where our new Lyso belt has given way under 3,000. Anyway, if your correspondents will order a belt from my firm, I will undertake to return their cash should the belt fail to run 3,000 miles, if they will agree to remit me twenty-five per cent. on the original cost should the belt run over 6,000 miles, and I will accept their word as to distance. I only stipulate that the driving pulley must be true to start with, and be trued up every 1,500 miles (cost 1s.) should it show wear.

EDWARD LYCETT.

Wired v. Beaded Edge Tyres.

[4648.]—I see that in letter No. 4578 Mr. Karslake wants to know what I mean by friction between cover and rim. If there is no friction why is it that tyres creep, and why do people use security bolts? If there were no friction between cover and rim there would be no creeping and no use for security bolts. Personally, I do not use security bolts, as the inner tube is apt to chafe against them, but I use anti-creep powder, which dispenses with bolts and prevents tyres from creeping. The foregoing remarks show that the friction is taken up on beaded edge covers where the tube, being enclosed in the cover, has no rubbing, or at least very little. Now in the wired-on type a lot of the friction is taken up by the inner tube pressing against both cover and rim, and as the tube is the most delicate part of the tyre, the result is that it rubs against the rim, and then you get a rubbed puncture, which is the most difficult to repair, and in spite of paint and tape your inner tube of the wired-on type will always wear out first against the rim. At least, that is my experience of about a score of the best tubes on the market. Mr. Karslake also says that paint and tape are cheap, so are repair patches and rubber solution, but I do not care to have to do much with them, even if they are cheap, as mending punctures, rubbed or otherwise, is a great nuisance. G. V. LOBB.

Balancing Motor Cycle Engines.

[4649.]—We observe in your issue of February 7th a letter signed "L.M.," referring to an engine we balanced for him some months ago, and are pleased to note the satisfaction the result appears to have given. With reference, however, to the surprise he expresses at finding the flywheel under-weighted to the extent of 8½ ozs., it may be of interest to him and other motor cyclists to know that of all the engines we have dealt with in this respect we have never yet found one correctly balanced. The casting of the bob weights even in the best class engines appears to be conducted in a hopelessly slap-dash manner, and the varieties

ALL YOUR REQUIREMENTS ARE CATERED FOR BY THE SERVICE CO., LTD.

Latest Models 1910 Motor Cycles, Second-hand Machines, and Accessories. Terms — Cash, Exchange, or Extended Paymen's. Send for full List Post FREE.

We can deliver at once 1910 Triumphs, Rex's, Indians, M.to-Reves, Douglas's, 2-speed F.N.'s, Enfields, Humbers, Kerry Abingdons, etc. Let us know your requirements. Stock of good second-hand ma chines to clear at low prices.

BELT RIM BRAKES.

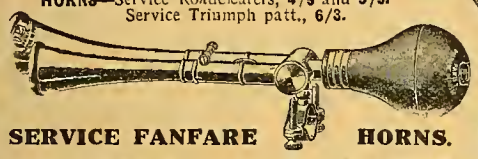
Complete with Pedal, **15/6.**

POCKET TOOL KITS.

containing Pliers, Spanners, File, Screwdrivers, Belt Punch, Knife, Contact File, etc. Price, complete, **11/6.**
Leather Roll only, **2/6.**

EASTER NECESSITIES.

HORNS—Service Roadclearers, **4/9** and **5/9.**
Service Triumph patt., **6/3.**



SERVICE FANFARE HORNS.

2-note 8in. long, **4/6**
3-note 10in. long, **7/6**
2-note 14in. long, in best French, **10/6**
3-note 18in. long, in best French, **15/6**

THE VOLIER. Loud and Compact, **8/6** and **5/9**

— NEW ACCESSORY LIST IN A WEEK OR TWO. —
Let us register your name for a copy now.

292, HIGH HOLBORN, LONDON, W.C.
'Phone: 260 Central. Telegrams: "Admittedly."

S. & H.

ROM.

26 by 2¼ rubber and steel combination, **56/-**
26 by 2 ditto.

RETREADING A SPECIALITY.

No. 19.	File tread, heavy,	26, 28 by 2, 2¼,	14/11	16/9
No. 20.	Square rubber tread	.. .. ..	17/9	19/-
No. 25.	Rubber studded ..	.. .. ..	20/6	21/6

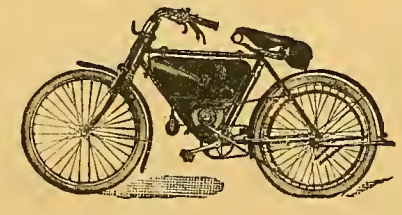
Including Vulcanizing.

No Trouble Tyres—The 'Service'
Best quality rubber, tough and durable. Covers wired and beaded.

26 or 28 by 2, corrugated,			18/6,	rubber studded,	29/6
,,	,,	2¼,	19/6	,, ,,	31/6
,,	,,	2½,	21/-	,, ,,	33/-

RADIOLENE
for Cylinders.
Gives a smart appearance.
Prevents rusting, and does not interfere with cooling.
10½d. per tin.

S RVICE BELTING.
Pliable, Durable, and Non-Slipping.
⅝in., **1/9**; ¾in., **2/-**; ⅞in., **2/3**; and 1in., **2/6** per foot.
STANLEY, SHAMROCK, WHITTLE, and WATAWATA stocked.
"BELTIGUM." Absolutely prevents slipping. **6d.** tube.



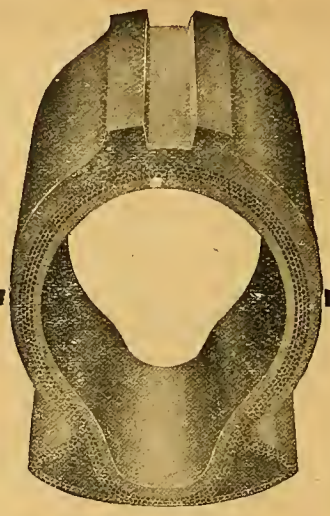
MOTOSACOCHE

(The name which stands for excellence).

THE GENTLEMAN'S MOTOR CYCLE.

MOTOSACOCHE, LTD.,
65, Holborn Viaduct, London, E.C.

In answering these advertisements it is desirable to mention "The Motor Cycle."



Start the season

with your machine fitted with Peter Union Twin Ribbed Double Grip Tyres. The advantages derived from the use of these splendid all-rubber tyres will be strongly in evidence right through the season wherever and whenever you ride.

Peter Union

TWIN RIBBED DOUBLE .. GRIP TYRES. ..

Write for Booklet on "Peter Union Motor Cycle Tyres."

THE PETER UNION TYRE CO.,

BIRMINGHAM: 160, Corporation Street.
Telephone—No. 5338 Central.
Telegrams—"Pneumeter, Birmingham."

LONDON: 190-2, Great Portland Street, W.
Telephone—No. 2433 Gerrard.
Telegrams—"Pneumeter, London."

MELBOURNE: 235, Flinders Lane.
Telephone—1217 City.
Telegrams—"Pneumeter, Melbourne."

Lightweights v. Heavyweights.

[4661.]—I beg to express hearty concurrence and sympathy with the Rev. R. Measures. Though I am not honoured by the acquaintance of the reverend gentleman (except by sight) I have frequently seen him speeding along on his trusty mount, waging no unequal contest with the elements of wind and water, slush and snow, frost and fog.

If Mr. Measures has to stop every 117 yards (which of course he has not), then a heavyweight will be the machine he will require. As Mr. Measures says, the heavyweight is both handier and superior to a lightweight in every way.

The heavyweight is relatively easier to uphold than a lightweight, and is no more difficult to take in and out of gates and doorways with one. I think a sportsman is naturally attracted to a big large machine, and prefers it to a puny lightweight with its feeble puff. No; Mr. Measures, I hope there will be plenty of enthusiasts like yourself, and the heavier brigade will triumph all along the line.

B. HIND.

[4662.]—I read Mr. Edgcombe's letter [No. 4588] in your paper with great interest, as his experience corresponds with my own. Ever since I started motor cycling, in 1902, my bugbear has been hill-climbing. When I bought a 1909 Triumph I thought I had done away with this, and I was not disappointed until I went to Devonshire. I certainly failed once or twice on Rectory Hill, but that was through a fault which I discovered and rectified. After doing this I could be certain of riding from London, and without a stop take Rectory Hill at a good pace. My weight is 15 st., and gear used was 5 to 1. When I got to Devonshire, however, I found hills beside which Rectory Hill is child's play. Not only are the gradients much more severe, but the surface of the roads and the bends were, in many cases, appalling. I should like to see a trial of motor cycles between Ashburton and Princetown *viâ* Dartmeet. I would guarantee that no single geared motor cycle would take all hills without the rider dismounting, at least once, if not more often. I made up my mind that I would never tour again in Devon without a two-speed gear, and if possible a chain drive.

At that time I had not properly tried the Whittle belt. I found rubber belts useless with the small pulley, and continued hill-climbing, so I bought a Whittle, but had not then the time or the knowledge to dress it properly, and so suffered from slipping. My subsequent experience with it however, shows me that when properly dressed it can be run very slack, and it is in every way to be preferred to a rubber belt where hard work and small pulleys are concerned. I may say that I was delighted with the Triumph in every other way and its reliability in every part was marvellous, but it wants a two-speed gear to make touring on one in Devon a pleasure.

E. L. SHELLA.

[4663.]—I have read with much interest the correspondence on this subject, and especially the letters which have been published from the Rev. R. Measures and "Rus in Urbe," as, having made the acquaintance of the former gentleman during my motor cycling career, I am in a position to know how well he is entitled to write on such a subject. "Rus in Urbe" has given his imagination a run, and takes it for granted that he is replying to a clergyman who has half a dozen people to visit in a sleepy village when the sun is shining.

Let me at once assure him that he has never made a greater mistake. I do not know a motor cyclist who can speak from more all-round experience than the Rev. R. Measures. He has the necessity to use his Triumph daily (and often by night) in all weathers, over all conditions of roads, up all sorts of gradients, and through traffic of all descriptions. His journeys are often of great length, and include a large number of the busy towns in England, and when occasion arises he does not hesitate to journey through the heart of London. This work he has not been doing for one year, but for five to my knowledge, and, as must be understood, this not only requires the dodging of traffic, but entails numerous stops in the principal thoroughfares of the towns he visits.

What the Rev. R. Measures does is to keep his machine in the same good order as it is turned out from the works, capable of doing anything from walking pace to fifty miles per hour, and of starting at the first attempt, with very slight exertion, on some of the stiffest gradients, and if all riders endeavoured to do this there would very soon be no call for lightweights.

W. M. GUNNETT.

EXPERIENCES WANTED.

"C.H.B." (Newmarket) would be glad to have riders' experiences of the Millennium "Fit-all" two-speed gear, also the Mabon multiple disc clutch.

"H. T." (Chippenham) would like readers' experiences of the Wall Auto-wheel. Is it satisfactory for long journeys of, say, seventy to eighty miles?

A.E.M. (Switzerland) desires owners' experiences with the Wall Auto-wheel as regards fuel consumption, side-slipping, and reliability. Also the 3½ h.p. Scott motor cycle for use on the Continent.

"Sidecar" (Leeds) would like owners' experiences with the Lowen sidecar, particularly with regard to the power required to drive it, use of brake on sidecar wheel, and how best applied, ease of steering, if child is carried in addition to usual passenger whether extra seat in front or extra wide seat is preferable, amount of licence, and if the authorities insist upon a tail light and car numbers being carried.

Will the occupants of a car who assisted two sidecarists between Ripley and Guildford on Saturday, March 5th, write to Messrs. E. K. Plowman and F. Tipping, 34, Church Street, Lee, S.E., stating make and size of car, when they will be pleased to forward the tools which were left behind by the car owners?

Some members of the Herts County A.C. (motor cycle section) who attended the opening meet at St. Albans, and also took part in the reliability run to Baldock and back. (See page 247.)

Prompt Deliveries Assured.

Humber, Ltd., announce that their London depot, 32, Holborn Viaduct, can arrange for prompt delivery of their motor cycles. The demand for Humber 1910 models has been unprecedented.

The East London Rubber Co., 29-31, Great Eastern Street, E.C., report that the pressure of orders for Kerry-Abingdon motor cycles caused them to be rather behind in deliveries, but they have now arranged for a larger output, and can supply on receipt of order.

Vulcanising Motor Cycle Tyres.

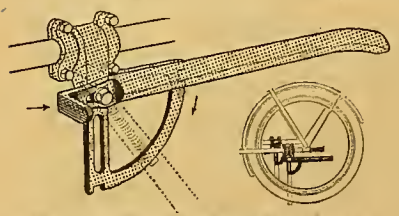
The special H.F. vulcaniser sold by Harvey Frost and Co., Ltd., 39, Great Eastern Street, E.C., for repairing motor cycle tyres, will, in future, be made up complete with tools and material, and will be packed in a special leatherette case. The dimensions will be 6 × 5 × 4½in.

Reasonable Accommodation when on Tour.

We have received a booklet from the Central Public House Trust Association, giving a list of hotels and inns in the various English counties which are under the management of the Public House Trust and People's Refreshment House Association. It will interest motor cyclists to know that the chief feature of the Association is to cater for tourists at a moderate price, and though alcoholic refreshments are sold the Association does not make a point of pushing them to the exclusion of food supplies, but strives rather to derive a reasonable profit from general catering. The inns and hotels are on the whole remarkably well managed, and no better examples in the London district can be found than the Hut Hotel, Wisley, and the Rose and Crown, Tring. We strongly advise motor cyclists to write for the list.

A Quickly Operated Stand.

In the last issue, under the heading of "Accessories and Equipment," we referred to a quickly operated stand made by Smith, North, and Priestland, Holloway Head, Birmingham.

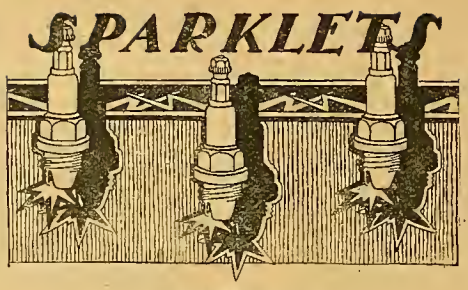


Price's Ukantes Stand made under licence by Smith, North, and Priestland.

Inadvertently this was referred to as the S.N.P. stand, but it should have been called Price's Ukantes stand, as it is made under licence from Price and Co., 25, Rosebery Avenue, E.C., who also make and supply the same article.

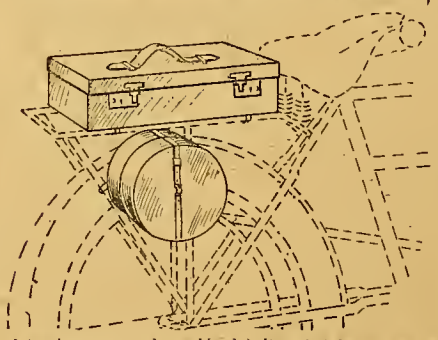
New Birmingham Tyre Depot.

Owing to the increased demand for Kempshall tyres the company have found it necessary to open a depot in Birmingham, at 71, Lionel Street. Mr. Reginald G. Priest will be pleased to hear from Midland motor cyclists who are interested in these tyres.



Touring Equipment.

With the advent of Easter and the touring season, motor cyclists are on the look-out for suitable touring equipment. A lock-up touring case for attachment to the carrier and a combined belt and tube case, sold by the Priory Accessories Co., Priory Mills, Coventry, are shown in the accompanying sketch. The cases are constructed of fibre board and have a covering of pegamoid. Special attention has been given to the matter of suitable fastenings by the manager of the company, Mr. John F. Spencer, who is himself a keen motor cyclist, and consequently knows a rider's requirements. Double locks are fitted to the touring case. The centre compartment in the belt and tube carrier is deep, so that the tube is carried snugly and the edges are unlikely to get chafed or damaged by vibration. The cases are light, strong, and should prove most serviceable, whilst the cost is very moderate. Other specialities for motor cyclists will shortly be introduced by the Priory Accessories Co.



A touring case and combined belt and tube carrier sold by the Priory Accessories Co., Coventry.

Catalogues Received.

The special Continental Tyre and Rubber Co.'s motor cycle tyre catalogue contains particulars of their driving gloves, various types of tyres, magneto covers, belt punches, butt-ended tubes, and other accessories. A copy of this booklet will be sent to any motor cyclists on application to the Continental Tyre and Rubber Co., at 102-108, Clerkenwell Road, E.C.

The 1910 catalogue of Michelin motor cycle tyres contains fully illustrated descriptions of the wired and beaded edge patterns, also the familiar red rubber air tubes, both endless and butt-ended. When ordering tyres the makers recommend that the following particulars be mentioned: Make of machine, horse-power, date of model, make of tyres at present in use, and make of rim. The standardisation of motor cycle rims is referred to specially, and the makers point out the disadvantage to the public on account of the variation in size and form of rims manufactured by different firms. For the wired-on covers the Westwood rim has been adopted as a standard. Copies of the above catalogue may be obtained post free from the Michelin Tyre Co., Ltd., 52-53, Sussex Place, South Kensington, S.W.

The Hendee Mfg. Co., 184, Great Portland Street, W., have forwarded us an advance copy of a catalogue for circulation among British motor cyclists. The first two pages are occupied by an introductory article by Mr. W. H. Wells, in which he explains his reasons for taking up the sale of the Indian machine in this country. The remaining pages are devoted to illustrations of the 4 h.p. single-cylinder and 5 and 7 h.p. twin-cylinder Indian motor bicycles, also illustrations and descriptions of some of the important features of these most excellent machines. Copies will be sent to any reader on application to the Hendee Mfg. Co. at the above address.

Accessories and Equipment.

Phelon and Moore, Ltd., are shortly opening an accessory department at their London depot, Mortimer Street, W.

A Neat Petrol Filter.

The makers of the Brown motor bicycle, Brown Bros., Ltd., Great Eastern Street, E.C., are fitting a very neat petrol filter to the tank. This filter takes the form of a tube which is screwed in place of the ordinary petrol tap union, the tap itself being afterwards screwed into the hexagon nut to which the filter is attached. The tube stands upright in the tank and is provided with fine gauze strainers on each side through which the whole of the petrol must flow on its way to the carburetter. This filter is practically self cleansing, as the wash of the petrol tends to clean off any deposits which may adhere to the gauzes.

A Handy Spare Carbide Tin.

We have received a sample carbide tin from the Union Rubber and Chemical Co., Ltd., Shaw Street, Aston New Road, Manchester. This neat little tin carries one small charge of carbide, and it is most handy to put in the pocket, as it takes up very little space and weighs very little. It is sold filled with Turco carbide, and is always a sufficient reserve in case the ordinary charge in the generator runs out.

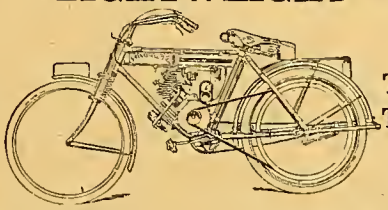
An Opportunity for Bargains.

The firm of A. H. Hunt, 115, Cannon Street, E.C., are now clearing a quantity of second-hand goods at extremely moderate prices. Induction coils (plain and trembler), accumulators, plugs, lamps, switches, magnetos, and many other accessories can be obtained at the above address at an extremely low cost.

MOTO-REVE

LIGHTWEIGHT

JUST A REMINDER



THE NAME THE MACHINE and these few D.TAILS

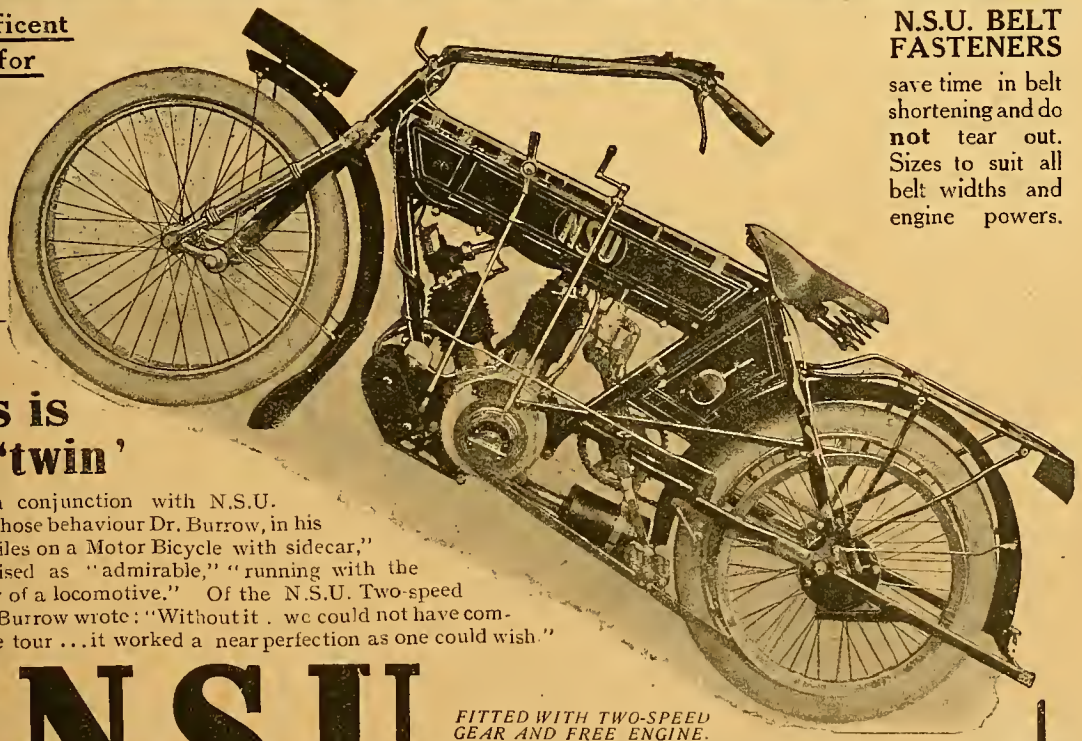
Moto-Reve—Lightweight—Model "B"—Weight 78 lbs.—27 Guineas—Magneto Ignition—Entire Handle-bar Control—Druid Spring Forks—Stand, Carrier, Number Plates—Quick delivery—Free trials—Catalogue with full details of all models free—Send now and get early delivery.

MOTO-REVE CO., LTD., Dept. "A," ACTON VALE, LONDON, W.

REMEMBER **27** GUINEAS.

S. & H.

A magnificent machine for sidecar work.



N.S.U. BELT FASTENERS

save time in belt shortening and do **not** tear out. Sizes to suit all belt widths and engine powers.

This is the 'twin'

—used in conjunction with N.S.U. sidecar, whose behaviour Dr. Burrow, in his "1,200 miles on a Motor Bicycle with sidecar," characterised as "admirable," "running with the regularity of a locomotive." Of the N.S.U. Two-speed Gear, Dr. Burrow wrote: "Without it . we could not have completed the tour ... it worked a near perfection as one could wish."

6 h.p. N.S.U.

FITTED WITH TWO-SPEED GEAR AND FREE ENGINE.

N.S.U. MOTOR COMPANY, LTD.,

Offices & Showrooms: 186, Great Portland Street, LONDON, W.

Goods & Repairs: 83-85, Bolsover Street. LONDON, W.

A.J.W.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), on Tuesday morning previous to the date of issue.

When possible advertisements received at Coventry on the Wednesday will be inserted.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

No. 2237.—5-6 h.p. BAT, J.A.P., M.O.V., standard 1910 model, Rom tyres, usual spares, as new; **£50.**

No. 2224.—New 2¼ h.p. 1910 ROYAL ENFIELD, standard model, Palmer Cord tyres. **Offers.**

No. 2222.—3½ h.p. 1909 TRIUMPH, standard model, Palmer tyres, in excellent condition; **£35.**

No. 2219.—3½ h.p. 1909 HUMBER, direct drive, grey model, Druid forks, good tyres; **£28.**

No. 2214.—4½ h.p. 1908 Four-cylinder F.N., Rom tyres, excellent condition, lamp, stand, carrier, etc.; **24 Guineas.**

No. 2212.—2 h.p. 1909 MOTO-REVE, standard model, Continental tyres, horn, toolbag, stand, etc.; **24 Guineas.**

No. 2211.—5-6 h.p. Four-cylinder F.N., late 1909 model, h.-b. control, foot brake, Englebert tyres, usual spares, as new; **33 Guineas.**

No. 2208.—2¼ h.p. BRADBURY, h.-b. control, Clincher tyres, excellent condition; **13 Guineas.**

No. 2234.—2 h.p. PEUGEOT, good tyres, lamp, horn, toolbag, etc.; **9 Guineas.**

No. 2021.—3½-4 h.p. MATCHLESS, J.A.P. engine and carburetter, 26 × 2½in. Dunlops, magneto, spring forks, specially built machine; **27 Guineas.**

No. 1890.—1¾ h.p. Lightweight F.N., magneto, spring forks, geared pulley, h.-b. control, 1908 model; **£17 10s.**

No. 2039.—4 h.p. 1909, Roc two-speed gear, lamp, horn, tools, etc., new condition; **36 Guineas.**

No. 2164.—7 h.p. BAT, Mahon clutch, good tyres, stand, carrier, toolbag, good passenger machine; **£35.** Guaranteed

No. 2206.—2¾ h.p. MINERVA, spring forks, B. and B. carburetter, handle-bar control, lamp, horn; **£12 10s.** Guaranteed.

No. 2168.—2 h.p. 1909 Standard MOTO-REVE, new; **23 Gns.** Guaranteed.

No. 2183.—3½ h.p. 1908 Magneto QUADRANT, spring forks, footrests, Mabon clutch, good tyres, horn; **23 Gns.** Guaranteed.

No. 2185.—1¾ h.p. Magneto MOTOSACOCHE, 1909 model, Clincher tyres, usual spares, almost new; **£27 10s.** Guaranteed.

No. 2024.—3½ h.p. 1909 MINERVA, Bosch magneto, spring fork, Continental tyres, horn, stand, carrier; **23 Gns.** Guaranteed.

No. 2040.—3½ h.p. ARNO, Roc two-speed gear, 1909 model, Rom tyre, stand, carrier, mirror, toolbag, etc., as new; **30 Gns.** Guaranteed.

A few left, 3½ h.p. new 1909 Standard REXES, complete with lamp, horn, etc.; **£35.**

No. 2060.—3½ h.p. 1909 T.T. TRIUMPH, standard model, in excellent condition; **£32.** Guaranteed.

No. 2193.—5 h.p. NORTON, Druid forks, adjustable pulley, handle-bar control, Rom tyres, front and back stand; **£25.** Guaranteed.

No. 2043.—5 h.p. 1907 REX, magneto, J.A.P. carburetter, Clincher studded tyres, spring forks and seat; **15 Gns.** Guaranteed

No. 2046.—2¼ h.p. 1909 Magneto ARIEL, handle-bar control, spring forks, in new condition; **£22.** Guaranteed.

No. 2075.—3¾ h.p. 1910 Twin PREMIER, standard model, not ridden twenty miles; **42 Gns.** Guaranteed.

No. 2157.—3½ h.p. 1907 TRIUMPH, Mabon clutch, Palmer tyres, spring seat, horn, toolbag, tools, etc.; **£27 10s.** Guaranteed.

No. 2169.—3½ h.p. 1909 Standard TRIUMPH, Clincher studded tyres, usual spares; **£35.** Guaranteed.

No. 1796.—1¾ h.p. MOTOSACOCHE, Clincher tyres, Druid forks, new condition; **16 Gns.** Guaranteed.

No. 2019.—Four-cylinder F.N., Rom back tyre, Palmer front, h.-b. control, petrol gauge, horn, two toolbags, stand, carrier, etc.; **£20.** Guaranteed.

No. 1857.—3½ h.p. 1908 Two-speed Magneto BROWN, very good passenger machine; **20 Gns.** Guaranteed.

No. 2159.—4½ h.p. 1908 Twin MINERVA, with rigid sidecar; **£27 10s.** Guaranteed.

No. 2125.—5 h.p. 1907 Two-speed VINDEC, standard model, very good sidecar mount; **£28 10s.** Guaranteed.

No. 2150.—3½ h.p. 1909 TRIUMPH, standard model, as new, Clincher rubber-studded tyres, usual spares; **£37 10s.** Guaranteed.

No. 1899.—3½ h.p. 1908 BROWN, magneto, new tyres, enamel, plating, etc., very good; **19 Gns.** Guaranteed.

No. 2088.—2 h.p. 1909 MOTO-REVE, Continental tyres, lamp, horn, toolbag, carrier; has not run 100 miles; **26 Gns.** Guaranteed.

No. 2145.—3½ h.p. Magneto N.S.U., spring forks, stand, carrier, toolcase, etc., good tyres; **16 Gns.** Guaranteed.

No. 2148.—2¼ h.p. MINERVA, spring fork, Palmer back tyre, Goodrich front, fitted with stand, carrier, pump, toolbag, etc.; **£16.** Guaranteed.

No. 2135.—1¾ h.p. N.S.U. Lightweight, magneto, good tyres, lamp, horn, toolbag, tools, spare tyre, etc.; **£17 10s.** Guaranteed.

No. 2127.—4 h.p. ANTOINE, good tyres, enamel, plating, etc., very good; **£14 10s.** Guaranteed.

Besides those quoted in this space, we can offer other good bargains. Do not fail to get our prices before definitely deciding. Recommended by all the leading makers for exchange business. Terms on application.

WAUCHOPE'S, 9, SHOE LANE, FLEET ST., LONDON, E.C.
Phone, 5777 Holborn. Telegrams: "Opificer, London."

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days, and if no sale is effected, each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I

Northumberland, Cumberland, Durham, and Westmoreland.

2 h.p. Minerva, good working order; £7.—Coates, 163, Stanhope Rd., South Shields.

N.S.U., 3½h.p., 1908, two-speed gear, whole machine, including tyres and belt, in new condition; £21.—Riglye, Fowler St., South Shields.

TRIUMPHS. 1910 models in stock, for immediate delivery; send for catalogue.—Turvey and Co., The Motor Cycle House, Sunderland.

TRIUMPH. 3½h.p., 1908, studded tyres, Covey speedometer, not run 2 000 miles, splendid machine; £31 10s.—Riglye, Fowler St., South Shields.

1910 Enfield Lightweight Twin Motor Cycles and N.S.U. latest models in stock, for immediate delivery; send for catalogues.—Turvey and Co., The Motor Cycle House, Sunderland.

BROWN, 2¾h.p., spent £15 recently overhauling, following new—tyre belt, pedals, accumulator, enamelling, plating; first cheque 10 guineas, no offers.—41, Saville St., North Shields.

2¾h.p. De Dion Engine, accumulator ignition, belt drive, 26 by 2¼ Palmer tyre, a bargain, £6.—Turvey and Co., sole agents for Triumphs, Humbers, N.S.U., Enfield lightweights, etc.; catalogue and booklets free.—Turvey and Co., The Motor House, Sunderland.

SECTION II.

York and Lancashire.

BRADBURY, 1910, brand new, 3½h.p.; £43.—Herd, 34, Market St., Wigan.

3½h.p. Triumph, late 1909, almost new; £40.—H. A. Hyde, Ormskirk, Lancs.

3½h.p. Quadrant, magneto, h.b. control; £22.—Wade, Longley Rd., Huddersfield.

PHELON and Moore, 1908, 3½h.p., two-speed, magneto; £30.—Holmes, Pollington, Snaith.

3½h.p. Triumph, new May, 1908, beautiful condition; £26.—27, Central Drive, Ansdell, Lytham.

QUADRANT, good going order, new tyres and belt; £5.—Fernbank House, Winton, Manchester.

3½h.p. Rex, perfect condition, lamp, and spares; any trial here; £16.—J. Gilpin, Gildersome, Leeds.

3½h.p. 1907 Triumph, in good order, magneto; 20 guineas; perfect condition.—Timberlake's, Wigan.

MINERVA, 2h.p., perfect running order, tyres very good, spares; £7.—Pickering, Benns Garden, Liverpool.

3½h.p. Premier, new August, 1909, used about 500 miles; bargain, £30.—Timberlake, King St., Wigan.

3½h.p. 1909 Progress Motor Cycle, h.b. control, Druid spring forks, magneto; £28.—England's Drug Co., Snaith.

WOLF Lightweight, 1909, practically new, horn, stand, accessories; £15.—Adamson, 220, Spring Bank, Hull.

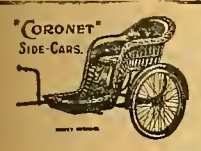
In answering these advertisements it is desirable to mention "The Motor Cycle."

EXPRESS DELIVERY.

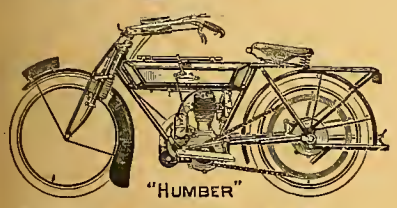
We have made arrangements to send these 1909½ TWO-SPEED HUMBERS per first passenger train on receipt of money order or telegraphic money order, so that customers will have full benefit of these machines for their Easter tour. Don't forget we are the only firm offering these new two-speed models to show a clear saving of £12 10s. Also note they carry the usual guarantee.

NO ACROBATIC FEAT

is necessary for starting these HUMBERS. One turn of the handle, and the engine is immediately set in motion. Seat yourself comfortably in the saddle, gently press with your foot the push pedal operating low gear; the machine instantly glides away as graceful as a car costing £500. If you would be the proud possessor of this beautiful mechanism, communicate with us NOW. Why not be in time for Easter?



£54 7 6. for £42 10 0.

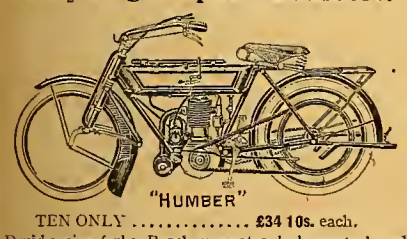


1909½ HUMBERS

brand new. These you can hardly tell from 1910 models, being fitted with improved pattern silencers, spring forks, larger pulleys, Roc licensed two-speed gear, h.-b. control, registered tank, high tension magnetos, Dunlop tyres, oil pump operated by foot, stand and carrier, toolbag with all tools fitted to handle-bar. Fully guaranteed.

£42 10s., complete with sidecar.

1909½ Single Speed Humbers.



TEN ONLY ..... **£34 10s.** each.

Druid spring forks, Bosch magnetos, h.-b. control, pedalling gear, stand and carrier, toolbags, tools, number-plates, etc. Usual price £45. A clear saving of £11 10s. Only Booth's can offer such value.

NEW 1909 ARNOS.

We have a few Brand New 3½ h.p. Models, fitted with magnetos, h.-b. control, complete with tools, etc.

List price, £45. Our price, **£32 10s.** Or exchange. Cash offers wanted.

Other Sidecar Machines.

4 h.p. STEVENS Tricycle, two wheels in front.. **£11 10**
5½ h.p. BROWN, twin, 1908, magneto, free engine **£25 10**
5 h.p. Twin REX, four speeds, spring forks **£16 10**
5 h.p. Twin REX, 1908, magneto, spring forks.. **£24 10**
3½ h.p. HUMBER, 1909, two speeds, soiled only **£32 10**
3½ h.p. BAT, magneto, two speeds, spring frame.. **£24 10**

Beautiful Solo Mounts.

3½ h.p. TRIUMPH, magneto, etc., 1909 ..... **£35 0**
3½ h.p. TRIUMPH, 1908, Mabon free engine **£30 0**
3½ h.p. TRIUMPH, 1907, in splendid condition .. **£25 0**
3 h.p. DOUGLAS, 1909, studded tyres, like new **£32 10**
3½ h.p. REX, 1909, tourist, soiled only **£32 10**
3½ h.p. QUADRANT, 1908, mag., beautiful order **£25 0**
3½ h.p. MINERVA, mag., enamelled French grey **£19 10**
3½ h.p. MINERVA, magneto, splendid condition.. **£18 10**
3½ h.p. N.S.U., magneto, 2½in. tyres, low built .. **£22 10**
4 h.p. N.S.U., twin, 1908, magneto, two speeds.. **£27 10**
6 h.p. Twin REX, with Forecar **£16 10**
7½ h.p. MINERVA, spray, good running order .. **£3 15**

BIG CASH DISCOUNTS.

BOOTH'S MOTORIES,
CHARLES STREET, off Square Road,
Phone 1062. **HALIFAX.** 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

1910 Twin Premier, run 100 miles, price £40; 1910 4h.p. Bat-J.A.P., new, £42.—143, Church St., Blackpool.

V.S., 5h.p., magneto, spring forks, quantity accessories, perfect order; trial; £24.—310, Upper Parliament St., Liverpool.

3½h.p. P. and M., magneto, 1909 fitments, newly plated and enamelled.—Barraclough, 446, Leeds Rd., Bradford.

£5 Buys 2h.p. Minerva Pattern, tyres good, accumulators.—Crowther, 27, Scar Top, Lockwood, Huddersfield.

HALIFAX.—1909 3½h.p. Rex, special engine, almost new, any trial; £29 10s.—Motor Exchange, Westgate, Halifax.

HALIFAX.—1909 3½h.p. Rex, new, fitted with 1910 spring forks; £35 10s.—Motor Exchange, Westgate, Halifax.

HALIFAX.—1910 Rexes; best terms; most liberal exchanges at The Motor Exchange, Westgate, Halifax.

HALIFAX.—3h.p. Humber, splendid climber, spray; cash bargain, £6 6s.—Motor Exchange, Westgate, Halifax.

1910 Triumph Roadster, 3½h.p., never been ridden; owner to cease riding.—163, Moorside Rd., Flixton.

REX Twin, 5h.p., spring forks, cantilever seat, fitted R.O.M. contact breaker; £15; approval.—Gee, 194, Castle Hill, Hindley.

2¾h.p. Rover, good running order, tyres very good, low, light; £12 12s.—Wileman, cycle dealer, Woodhouse Lane, Leeds.

BRADBURY, late 1909 model, direct from works and guaranteed; £36 17s. 6d.—White's, Brooks Alley, Liverpool. Royal 3782

3½h.p. Two-speed Chater-Lea Motor Cycle, Palmers, Watawata, £16 10s.; new sidecar, £4 10s.—Graveson, Whitland Rd., Liverpool.

5h.p. Rex, handle-bar control, good tyres, new Whittle belt good condition; £20, or nearest offer. — 17, Stanton St., Clayton, Manchester.

MANCHESTER Motorists can obtain Ariel, Bradbury, Douglas, Norton, P.M.C. two-stroke from official agent, Gourlay, Fallowfield.

PHELON and Moore 1910 Touring Model, now due for delivery at works; cash £55 nett.—Address, 4,269, *The Motor Cycle* Offices, Coventry.

3½h.p. Pedal Type New Humber, purchased December, 1909 never used; cost £45, bargain, £38.—Examine at Timberlake, 28, King St., Wigan.

3½h.p. Rex Motor Cycle, good condition; must be sold; also forecarriage for above, complete; £15.—4,284, *The Motor Cycle* Offices, Coventry.

3½h.p. Rex, early 1909, not ridden 100 miles, magneto, free engine, Shamrock belt, Lucas lamp, stand, tools, etc.; £25.—40, Gt. Moor St., Bolton.

2½h.p. Lightweight Magneto Rex, late 1908, Riches tube and new cover back, climb anything, splendid condition; £12.—J. Bond, Summerbridge, Leeds.

MINERVA, 2¾h.p., spring forks, Amac h.b. control, new tyres (rubber non-skid), lamp, horn, etc., everything perfect.—Ashley, 53, Nicolas Rd., Chorlton.

3½h.p. Two-speed Humber, used about 500 miles; any examination and trial; £35.—Rev. Father Almond, St. Cuthbert's, and Timberlake's Garage, Wigan.

1909 Triumph, Palmer cords, perfect condition, Autocliplse lamp, all spares; full details on application; £36 for quick sale.—Holmes, 32, Agar St., Bradford.

4-6h.p. 4-cyl. Durkopp, spring forks, high tension distributer, 2¼in. tyres, slight adjustment needed; best offer over £13; must be sold.—53, Trafford Rd., Salford

BRADBURY, 3½h.p., new June, 1909, little ridden, splendid condition, complete; £30, without spares and extras £28.—Tate, Grosvenor House, Menston, near Leeds.

PEUGEOT, 3½h.p., twin, Chater-Lea frame and wheels, Bosch magneto, two pulleys, perfect running order; £17 10s.—Hutton, 135, Brunswick St., C.-on-M., Manchester.

3½h.p. 1909 Late Triumph, guaranteed used under 2,000 miles, splendid order; £37 10s.—Rev. Father Southworth, Pemberton, or Timberlake's Garage, Wigan.

LIVERPOOL.—Motosacoche, Moto-Reve, Wolf, the only veritable lightweights; Phelon and Moore heavy and light.—Sole official agents, British Cycle Co., 1, and 3, Berry St.

3½h.p. Phelon and Moore Motor Cycle, two speeds, with Mills-Fulford sidecar, grand turnout, splendid condition; what offers?—Fillingham, Swiss Villa, Pool, near Leeds.

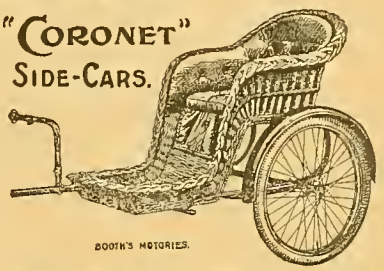
2¾h.p. Minerva, torpedo tank, accumulator ignition, h.b.c., new tyres and tubes, Clincher studded back, in splendid condition throughout; £13, a bargain.—Prispin, 48, Chatsworth Place, Harrogate.

TRIUMPHS, immediate delivery, come and see me before purchasing your 1910 mount, any make supplied; second-hand Triumphs taken in part payment.—Triumph Agent, 53, Trafford Rd., Salford.

ASTER, 3h.p., low Chater frame, grand condition two good accumulators, footboards, most comfortable and reliable machine, very easy starter, only wants seeing; £16.—Johnson, chemist, Coronation St., Blackpool.

WE CLOSE Good Friday, Easter Monday and Tuesday.

£4 17s. 6d.



We maintain the "Coronet" is the BEST DESIGNED SIDECAR on the Market.

Free from Side-slip.—The "Coronet" Sidecar is attached in three places, the front down tube, bottom stay, and saddle bolt, and can be detached in three minutes. Every tube of attachment is telescopical and adjustable to suit any length wheelbase, any height or width. When attached the combination is as firm and rigid as a Tricar, and entirely free from side-slip, and can be driven safely without passenger if desired.

Price £4 17s. 6d. Discount to trade.

CORONET ADJUSTABLE PULLEY.

12/6

The best variable speed pulley on the market. Loose flange securely held in any position by a simple yet ingenious contrivance. Gear can be altered without the aid of spanners, lock ring easily operated by hand. Buy a "Coronet" pulley and gear your machine suitable for hill-climbing.

Standard makes, such as Rexes, Triumphs, Minervas, supplied without the necessity of sending old pulley for pattern. **Discount to trade.**

"GRIPSKIN" BELTING.

Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

½in., 10d.; ¾in., 11d.; ⅞in., 1/1; 1in., 1/2.

Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

Clincher Covers: 26in. or 28×2in., 2¼in., 2¼in., **16/6.**
Dunlop Covers: 26×2in., **15/6**; 26×2¼in., **17/6**; 28×2¼in. or 2¼in., **18/6.**
28×2in. Dunlop Covers: Beaded, **14/6**; Wired, **16/6.**
24×2¼in. Clipper-Reflex, heavy treads, **12/6**; ditto tubes, **4/-**

Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from **£9/6**
Your old coil and acc. taken in exchange

CARBURETTERS.

BROWN AND BARLOW. AMAC.

Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters.
OLD CARBURETTERS BOUGHT.

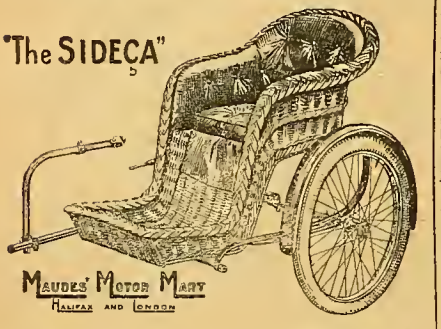
MISCELLANEOUS.

De Dion Car Frame, wheels, differential	£3 10s.
New Water-cooled Cylinder M.O.V., 81 mm. bore	19/6
Six good Plain Coils .....each	3/3
Dozen good Trembler Coils .....each	7/6
Mudguards and Stays 3in., 2/11, 4in.,	3/6
Silent Silencers for engines to 5 h.p.	3/3
Long Handle-bars, well plated	5/6 and 6/6
500 Fuller Midget Trembler Coils	17/6
200 Fuller Plain Coils (your old coil taken in exchange)	10/6
250 Mirror Lens Lamps, with generators	14/9
50 Pairs New X'lall Spring Forks, latest	15/-
Longuemare, Minerva, E.N. carburetters .... each	5/6
Osborne Four-speed Gear, ...	35/-
Albion Free Engine Clutch, ...	29/-
Amac and B. & B. carburetters	7/6
Good Forecarriage, complete, with tyres.....	£2 19s.
Light Car Frame, with springs and wheels	£2 10s.
Norman Two-speed Gear, nearly new	£2 5s.
New Twin Antoine Cylinder.....	20/-
New Amac Carburetter, handle-bar control	17/6
Second-hand pair XL'All or Matchless Spring Forks	9/6
De Dion Two-speed Gear Box, nearly new	£2 5s.
Low tension Magneto suit car	27/6
New Pistons, 81 mm. diam.	3/9

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), **HALIFAX.**
Telephone 1062.

MAUDES' MOTOR MART

HALIFAX AND LONDON



The finest sidecar at present on the road irrespective of price.

"Par Excellence."

Double Cee springs. Stove enamelled in two coats. No wasted or unnecessary plating. Luxuriously upholstered either red or green. Finished any colour to order.

However we could chant its praises "for months and months and months," but send for pamphlet.

£5 5 0

ALL COMPLETE.

IMMEDIATE DELIVERIES FOR EASTER.

New **1910 BRADBURY**, standard ..... £4"
New **1910 MOTO-REVE**, 2 h.p. £37
New **1909 REX**, 5 h.p., two speeds ..... £[illegible]
New **1909 REX**, 3½ h.p., Tourist Model £35
New **N.S.U.**, 3 h.p., magneto £25
New **N.S.U.**, 3½ h.p., magneto £31

All ready for immediate delivery. Close cash offers entertained.

MINERVA 3½ h.p., magneto, spring forks. Good running order £20

N.S.U. 4 h.p., twin-cylinder, 24in. wheels, Mabon free engine magneto 1908 model £25

BROWN 2¾ h.p., magneto, low saddle position, good tyres £16

SINGER 3 h.p., vertical engine, magneto; cost over 50 gns.; accept for cash £14

CLYDE 2¾ h.p., vertical engine, magneto, good tyres £14

KELECOM 4 h.p., Phœnix two speeds, very good tyres, spring forks and seat £16

ANTOINE 4 h.p., vertical, M.O.V., very low and long, free engine, 26in. wheels, good tyres. A bargain £15

WHITE AND POPPE 3½ h.p., vertical. A bonny mount. Low built £14

ZENITH 3 h.p. Bicar, sprung both wheels, two speeds, very low £15

MINERVA 3½ h.p., magneto, 1909 model, G. and M. carburetter automatic £23

MINERVA 3½ h.p., similar to above, but without spring forks and black finish. £21

MINERVA 3½ h.p., accumulator ignition, vertical engine, good order and condition £14

N.S.U. 3½ h.p., two speeds, magneto, spring forks, good condition £20

V.S. 4 h.p., 1908 model, twin, magneto, Truffault forks. Clear at £24

PEUGEOT 3½ h.p., Truffault forks, magneto, good tyres, very fine order ..... £1.

N.S.U. 3 h.p., vertical, 26in. wheels, 1908 model, magneto, T.B. footboards. Clear at £16

MINERVA 3½ h.p., vertical, Minerva spring forks .. £14

F.N. 1¾ h.p. Lightweight Model, geared pulley £15

MOTO-REVE 2 h.p., magneto, twin spring forks, low built £18

PHŒNIX Quad Car 8 h.p., two-seater, two cylinder, a beauty £40

PLEASE NOTE.—We close Good Friday and Easter Monday and Tuesday.

MAUDES' MOTOR MART,

136, Great Portland Street

(Off Oxford Circus),

LONDON, W

Telephone 552 Mayfair. Teleg.s: "Abdicate, London."
Hours 9 to 8. Sats., 9 to 6.

MOTOR BICYCLES FOR SALE

6 h.p. J.A.P.-Matchless (1908), Phœnix two-speed and clutch, magneto, frame sprung back and front, adjustable pulley, headlight, all spares, perfect order; £28 10s., lowest; exchange lower power of good make.—Carrell, clothier, Lowerhead Row, Leeds.

ROC, 5-6h.p., twin, late 1908, Palmer tyres, Bosch magneto, Amac carburetter, h.b. control, Druid spring forks, two-speed gear, handle starting, Davison tanks, two silencers, Cowey speed indicator, complete for road, spare Rich tube and many parts, a strong reliable machine, not much ridden.—444, Chester Rd., Manchester.

VINDEC, 5h.p., late 1908, 26 by 2½ Palmer cord tyres front and R.O.M. combination non-skid back, both new, two-speed, electric lamp, Jones 5 guinea speedometer, handle-bar control, lot of spares, run about 4,000 miles, winner of five gold medals in reliability trials, in splendid condition, just overhauled; £40.—Box No. 4,255, *The Motor Cycle* Offices, Coventry.

3½ h.p. Rex Motor Bike, bought July, 1908, fitted with magneto also fitted with Roc two-speed gear, live axle free engine with horn, lamp, tools, and registered, in absolute perfect condition as new; first cash order for £27 secures same; this is a very special bargain.—Coringley, Motor Bazaar, Tel.: 2Y, Cushingden.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

6 h.p. Twin Magneto Rex, tuned for Easter; sell £18 or exchange.—Minshall, Stoneway, Bridgnorth.

3 h.p. Sarolea, just overhauled, new belt and back tyre h.b. control, footboards; £12.—Wineway, Shrubbery Walsall.

1909 5-6h.p. 4-cyl. F.N., as new, £32 10s.; Moto Reve, £22 10s.; any trial.—Denne, Matlock Bath, Derbyshire.

13 5-09 Triumph, free engine model, only run 500 miles, lamp, horn, tools, etc.; £37 10s., nett.—Woodfin, Tarvin, Chester.

1909 Triumph, studded tyres (hardly scratched), Lucas headlight perfect condition; £36; any trial.—Sidderdale, Weeping Cross, Stafford.

1908 2¾h.p. Bradbury, genuine machine, brand new Dunlops, new 20 amp. accumulator, with spare; £14.—Whittingham Newport, Salop.

F.N., 2h.p., Mabon clutch, new tyres, Whittle belt stand, accessories, splendid condition; £9 10s. for quick sale.—Henshaw, wheelwright Stockport.

3½ h.p. Brown magneto, tyres and belt new, stand carrier, lamp, horn, £18. 2¼h.p. Featherstone grand machine, £8 8s.—Washington Middlewich.

TRIUMPH, 3½h.p., magneto, late 1907, tyres and belt as new, perfect condition overhauled at works, spares and accessories; £24.—King, Barton-under-Needwood.

TRIUMPH, 1909, T.T. model, touring handle-bar wheels, saddle, new June, like new, £38; also tw 1909 standard models, splendid condition, £36 each.—Moss, Wem.

3½ h.p. Rex, 1909, fitted with 1910 cylinder, just over hauled, in perfect order, full spares, Watawata belt valve, etc.; owner buying two-speeder; price £35 —Glossop, Marple Bridge, Stockport.

1909 Triumph, only ridden 300 miles; owner bought free engine Triumph. £38; 1908 Triumph in good condition, £28; 1910 Triumphs in stock.—Hallowa, Bros., Market Drayton, Shropshire.

3½ h.p. Ariel, just overhauled, cylinder bored, new piston and carburetter, handle-bar control, new accumulator belt and back tyre as new; £18; buying car.—Matthews, builder, Nantwich.

DOUGLAS 1910, practically new, not run 250 miles complete spares, accessories, lamp spare Michelin butt-ended tube, extra mud flaps, splendid hill-climber; cost £42, best offer accepted.—No. 4,281, *The Motor Cycle* Offices, Coventry.

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

2 h.p. Minerva, inclined, wants a little fitting; 70s.—Motor, Park Lodge, Brackley.

LIGHTWEIGHT F.N., 1¾h.p. magneto; £16 10s.—Maurice Hall, Eastgate, Louth.

1909 Triumph, Palmer cord tyres, used very little, and carefully kept; £39.—Below.

1909 Triumph, Palmer cords, new July; £35.—Below.

1908 Triumph, new Palmer cord on front, Clincher with Grose non-skid on back, good condition; £32. —Below.

1907 Triumph, excellent condition, h.-bar control, adjustable pulley; £29 10s.—Below.

1909 Premier, new condition; £35.—Bull, 228, Wellingborough Rd., Northampton.

1909 Triumph, in perfect order, unpunctured; £36.—Wilkin, Welholme Rd., Grimsby.

3½ h.p. Clarendon, faultless, overhauled and re-bushed; £12 10s.—15, Houghton St., Leicester.

EXCELSIOR, 3½h.p.; £8 10s., money wanted. — 140 Wright St., Small Heath, Birmingham.

MAUDES' MOTOR MART

HALIFAX AND LONDON

Our Halifax Depot will be closed Good Friday, Easter Monday and Tuesday

GOOD MOUNTS FOR EASTER

ready to be ridden away.

N.S.U., 3½ h.p., magneto, brand new, 26×2¼in. tyres, low built £31
N.S.U., 3 h.p., magneto, brand new, only four left, cash £25
N.S.U., 5½ h.p., twin, magneto, low built, only two left £37
REX, 5¼ h.p., magneto, low built, good tyres to both wheels, in beautiful condition throughout £22
BRADBURY, 3½ h.p., brand new 1910 model, standard throughout £46
TRIUMPH, 3 h.p., magneto, grey finish, Palmer tyres to both wheels, handle-bar control, etc. £20
TRIUMPH, 3 h.p., low built, in good condition, etc. .. £18
KERRY, 5½ h.p., low built, 26×2¼in. tyres, in good condition, a splendid sidecar machine £20
HAMILTON, 4 h.p., low built, handle-bar control, footboards, etc. £14
ARIEL, 3½ h.p., B. and B. carburetter, good tyres, 26×2¼in., low built, etc. £14
PEUGEOT, 4 h.p., twin cylinder, low position, a fine climber £15
MINERVA, 4½ h.p., twin, 26×2¼in. tyres, handle-bar control, in splendid condition £22
MINERVA, 2¾ h.p., handle-bar control, cream finish £14
CLARENDON, 3 h.p., M.O.V., accumulator ignition, good tyres £12
EXCELSIOR, 3 h.p., grey finish, a good climber £10
MINERVA, 3½ h.p., grey finish, in splendid condition, good tyres to both wheels, 26×2¼in. £16
N.S.U., 3 h.p., low built, long bars, B. and B. carburetter, h.-b. control, Whittle's belt, adjustable pulley £16
ROVER, low built, 26in. wheels, cream finish, 26×2¼in. wheels, Amac handle-bar control, in good condition throughout £12
FAFNIR, 2 h.p., low built, an ideal lightweight £12
HUMBER, 3½ h.p., two speeds and free engine, grey finish, as new, 1909 model, all accessories £32
N.S.U., 3½ h.p., 1907 model, Roc two-speed gear, low built, splendid tyres to both wheels, a beauty £20
BRADBURY, 2¾ h.p., three-speed pulley, in good running order £8
MINERVA, 2¾ h.p., new tyres to both wheels, in first-class running order and condition, first cheque secures £10

OUR EASTER OFFER.

3 h.p. BARTER, in first-class running order, complete with number-plates, lamp, horn, etc., all ready for the road £7

50/- down, and the balance 5/- per week secures the following:

QUADRANT, 1¾ h.p., spray, good condition £8
BARTER, 3 h.p., spray carburetter, long bars £9
BURKOPP, 2¾ h.p., good tyres, in Ar condition .. £10
BROWN, 2 h.p., a good little mount £10
EXCELSIOR, 2¾ h.p., long bars, spray carburetter, rubber and canvas belt, etc. £10
BRADBURY, 2¾ h.p., three-speed pulley, in good running order £10
MINERVA, 1¾ h.p., spray carburetter, in fair condition £8

All machines in good running order before leaving our works, and tested by experienced men.

SEND FOR OUR LISTS, POST FREE.

Have you had one of our Calendars. If not, send postcard.

REMEMBER

WE ARE THE LARGEST DEALERS in NEW and SECOND-HAND MOTOR CYCLES, and can supply any of the following:

F.N., BAT, P. & M., TRIUMPHS, NORTONS, DOUGLAS, MOTO-REVES, HUMBERS, REXES, QUADRANTS, MINERVAS, BRADBURYS, WILKINSON, I.A.C., PREMIERS, ROCS, ZENITHS, WOLFS, V.-S., etc.

TRICARS AND CARS.

PRUNEL Car, 20 h.p., side-entrance, four-cylinder, four speeds; bang up to date; clear at £130
PHŒNIX Car, 8 h.p., two-cylinder, two speeds, two-seater, good tyres £42
REXETTE Tricar, 5½ h.p., two speeds, open frame, water-cooled, very good condition £32
QUADRANT Tricar, 5½ h.p., two speeds, open frame, air-cooled £15
HUBBARD Tricar, 5½ h.p., water-cooled, two speeds, Chater-Lea gear box, perfectly sound £26

Every machine guaranteed in sound running order before delivery.

MAUDES' MOTOR MART,

136, Gt. Portland St. (off Oxford Circus), **LONDON. W.**	**Powell St.** (behind Victoria Hall), **HALIFAX.**
Hours 9 to 8, Sats. 9 to 6.	Hours 9 to 6, Sats. included
Tele {grams: 'Abdicate, London,' phone: 552 Mayfair.	Tele {grams: 'Petrol, Halifax. phone: 433 National.

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

1909 Triumph, splendid condition, very fast machine; price £35.—Lewis, butcher, Stratford-on-Avon.

3h.p. Triumph, splendid condition throughout, just overhauled; £18 10s.—61, Wellongate, Grimsby.

ARIEL 1909 2¼h.p. Lightweight, accumulator ignition, spring forks, quite new; bargain.—26, Beech Rd., Bournville.

2¼h.p. Minerva, good tyres, spring forks, stand, carrier, spares; £5 10s., near offer.—Drury, Sturton-by-Stow, Lincoln.

EXCELLENT Triumph late 1907, condition, exceptionally reliable; £26.—Payne, House Furnisher, Melton Mowbray.

3h.p. Lincoln Elk (1908), excellent condition, accumulator ignition; genuine bargain, £12; approval willingly.—B. Morris, Bourne.

3¼h.p. M.M.C., rebushed, 2-volt, Whittle, speedometer free engine, pulls sidecar; £13, or best offer.—Mather, Town Hall, Nuneaton.

NEW 1910 T.T. Triumph, touring saddle, tyres, handlebars, lamp, horn, and many extras.—Apply, Victoria Garage, Fleet St., Coventry.

REX de Luxe, twin, magneto, Roc clutch, spring forks, spring saddle, good condition; £19.—Hill, Rectory Rd., Sutton Coldfield.

BAT, 3½h.p. engine, tyres, belt, etc., all in good order, accessories; £13 10s.—Spencer, 27, Priory St., Coventry.

3½h.p. 1909 Premier, very little used, like new, complete with spares; low price to clear.—Main, 36, Parade, Leamington.

PREMIER, 3½h.p., twin, just received from works; immediate delivery; 50 guineas.—Gillott, Cycle Depot, Loughborough.

TRIUMPH, 1908, engine, etc., 1909, perfect condition; £31, or best offer.—Lambourne, 59, Willows Crescent, Cannon Hill, Birmingham.

2h.p. Minerva, fast, reliable, tyres as new, enamelled and overhauled, good condition, not rubbish; £9, bargain.—Larrington, Moulton, Spalding.

TRIUMPH, Rex, Minerva, Excelsior motors, new and second-hand; send for weekly list.—The Victoria Garage and Electrical Co., Ltd., Coventry.

DOUGLAS, 1910 models, in stock, complete with lamp horn, and accessories; 38 guineas.—Norton and Sons, ironmongers, Smithford St., Coventry.

2¾h.p. Clyde, vertical engine, mechanical valves, magneto, Olincher tyres, guaranteed in perfect condition; £12.—17, Dorking Rd., Nottingham.

MINERVA, 2h.p., M.O.V., Palmer cords, Longuemare, light, excellent condition, footboards, etc.; bargain, £7.—Parsloe, 79, Bismarck St., Leicester.

£15, or nearest offer.—3½h.p. Brown, handle-bar control, same tyres and belt, practicaly no wear.—W.T., The Cedars, Boldmere Rd., Wylde Green, near Birmingham.

1908 Rex de Luxe, 3½h.p., perfect order, Roc clutch, two speeds, handle starting, Grose non-skids, all spares, ready for road; £27 10s., no offers.—Willows, East Stockwith, Gainsborough.

MOTOSACOCHE, 1¼h.p., new June, 1909, not ridden 100 miles, spare belt, new lamp, unpuncturable sands, tyres perfect, spring fork, accumulator; price £23.—Jervis, Norton Disney, Newark.

F.N., 1¾h.p., lightweight, magneto, spring forks, lamp horn, stand, carrier, all accessories, new tyre and tube on back, absolute perfect condition; any trial.—38, Springfield Rd., King's Heath, Birmingham. £15 5s.

QUADRANT, 3h.p (surface) present date, spring forks, perfect condition splendid touring mount, good spares; £12 10s.—Malvern House, St. Matthew's Rd., Smethwick.

1909 Triumph, perfect condition, spare belt, valve, plug, punch, valve extracter, etc., lamp and generator, two Clinchers, practically new, very carefully ridden; inspection invited; £36, or near offer.—Macdonald, Towester.

5½h.p. Twin Rex de Luxe, Xmas, 1908, free engine Roc clutch, two-speed, cantilever saddle, obsolutely as new, tyres not scratched; expert examination invited; £30, close offer.—Whittaker, contractor, Stockingford, Nuneaton.

TRIUMPH, 1909, Triumph free engine, Palmer cord tyres, self-sealing tube in back, Autoclipse lamp and generator, horn, spares, practically new; cost over £60, accept 42 guineas.—Fred Percival, Long Causeway, Peterborough.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

TWIN 4½h.p. Minerva, free engine, not done 500 miles.—Wolf, Castle St., Norwich.

1909, 1910 Triumphs, 1909 Premier; 2¼h.p. Brown £6.—Lambert, Castle St., Thetford.

TRIUMPH, magneto, perfect order, tyres nearly new; £18.—Ash Leigh, Ellisley Av., Cambridge.

TWO 1909 Triumph Motors, as new; £40, one free engine £45.—Crawley, St. Mary's, Bedford.

3½h.p. Centaur, tyres and tubes nearly new, guaranteed; £12.—Reeve, Windsor Rd., King's Lynn

LADY'S Sidgar Motor Cycle, magneto, in grand order and condition; £10, or offer.—3a, Bridge St., Cambridge.

To Prevent Disappointment.

We beg to advise our numerous clients that our EXCHANGE will be closed on Good Friday, Easter Monday and Tuesday.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

SPECIAL CASH BARGAINS.

3	h.p. BRADBURY, long and low	£10 0
1906	3½ h.p. REX, spring forks, M.O.V.	£15 10
4	h.p. STEVENS, h.-b. control, band brake	£9 15
3	h.p. CLYDE, magneto ignition	£14 10
2¾	h.p. KERRY, light and low, spray	£9 10
3½	h.p. REX, 22in. frame, re-enamelled, trembler	£7 10
3½	h.p. ROVER, 26 x 2½in. Palmers	
3	h.p. BEESTON-HUMBER, spray	£9 10
3½	h.p. WERNER, used with passenger	£13 10
2½	h.p. Light ARIEL, low build, 26in. wheels	£3 15
3½	h.p. EXCELSIOR, h.-b. control, untested	£5 15
3	h.p. HUMBER, splendid climber	£5 10

Monster list on application. Cash offer considered.

SPECIAL OFFER.

26 x 2in. and 28 x 2in. beaded edge covers, 13/6 each. These are well-known standard make. New and perfect. Tubes, 4/11. Bargain list on application. Approval.

Three 5½ h.p. TWIN REXES, spring forks, long bars, low frames, aluminium finish, blue lines, 26in. wheels **£16 10**
Good sidecar machines. Exchanges or easy payments.

1909 REXES 1909

Brand New and fully guaranteed.

1909	3½ h.p. Tourist REX	£35
1909	3½ h.p. REX DE LUXE, two-speed	£45
1909	5 h.p. REX DE LUXE, two-speed	£48

The 5 h.p. Twin de Luxe (two speeds and free engine) is the best passenger mount on the market. No thumping and overheating on hills. Charge your willing but underpowered single for one of these, and give your passenger a pleasant ride instead of walking exercise.

CARS.

Any reasonable exchange considered. Room wanted.

1908	16 h.p. Four-cylinder REMO, Bosch magneto, hood, screen, lamps, clock, speedometer, etc.; cost £425; accept	£165 0
Brand-new	O.T.A.V. Voiturette; cost 102 guineas; hood, lamp, etc.	£60 0

EASY PAYMENTS.

5/- weekly and reasonable deposit secures any of these machines. All tested and ready for the road.

2¾	h.p. BRADBURY	£10 0	2½ h.p. KERRY ... £9 10
3	h.p. CLYDE ..	£15 0	2½ h.p. ARIEL ... £9 13
3	h.p. ARIEL ..	£10 0	2¼ h.p. WERNER .. £8 10
3	h.p. HUMBER ..	£10 0	3½ h.p. WERNER .. £13 10
3½	h.p. REX	£10 10	2¾ h.p. M.M.C. £9 10
2½	h.p. MINERVA	£6 10	2 h.p. HUMBER .. £8 10
3½	h.p. ROVER ..	£14 0	3 h.p. BRADBURY £10 10
2¾	h.p. MINERVA	£9 10	3½ h.p. EXCELSIOR £9 10

1910 REXES. LIBERAL EXCHANGES.

Deliveries from stock of all models.

SIDECAR MACHINES.

1909	Two-speed TWIN REX DE LUXE	£39 0
1909	5 h.p. TWIN REX, nearly new	£32 10
1908	TWIN REX, magneto, spring forks	£26 10
	Four-cylinder F.N., magneto	£19 19
1908	5 h.p. REX DE LUXE, mag., extra good	£29 10
	6 h.p. N.S.U., spring forks, magneto	£24 10
	TWIN KERRY, very fine condition	£16 10
	5½ h.p. REX DE LUXE, Roc clutch	£25 10
	5 h.p. Twin ANTOINE, spring forks	£14 10

1910 DE LUXE SIDECARS.

Special detachable fittings, no second adjustment necessary, 26 x 2½in. tyre, art cane or best wicker body, £5 17s. 6d. Usual rigid type, art cane, £4 17s. 6d. Illustrated pamphlet on application.

POPULARS.

1909½	HUMBER, brand new	£34 10
1909	Two-speed HUMBER, nearly new	£29 10
1909	4 h.p. N.S.U. de Luxe, nearly new	£29 10
1909	3½ h.p. Magneto REX, nearly new	£29 10
1909½	3½ h.p. REX Speed King, new	£35 0
1909	Special 3½ h.p. Competition REX	£30 0
1908	3½ h.p. Magneto REX, special machine	£24 10
1908	3½ h.p. PHELON & MOORE, magneto	£31 0
1908	3½ h.p. Magneto MINERVA	£23 10
	3½ h.p. Magneto QUADRANT, spring forks	£24 8
	h.p. ANTOINE, high tension magneto	£18 10
3	h.p. Magneto SIMMS, 2¼in. Palmers	£16 10
3	h.p. SINGER, V belt, h.t. magneto	£16 10
1907	3½ h.p. QUADRANT, spring forks	£16 10

Wanted for export:—A few 1910 TRIUMPHS. Cash waiting.

MOTOR BICYCLES FOR SALE.

2¾h.p. Minerva, magneto, spring forks, practically new; £15.—Key, 63, Moorpool Av., Harborne, Birmingham.

3½h.p. Bat Motor Cycle, spring frame, footboards as new; £11 10s., offers.—Riddelsdell, Hadleigh, Suffolk.

5-6h.p. Twin Chase, spring forks, in perfect order and condition; £15, or offer.—37, Scarle St., Chesterton Cambridge.

WHAT Offers for brand new 2½h.p. 1910 J.A.P., not ridden, accumulator ignition, very low.—Particulars, A. Moyse, Kessingland.

1908 Triumph, 1909 piston, cylinder, new Kempshall back tyre, new Dermatine, horn, etc.; £30.—Crawley, St. Mary's, Bedford.

WHAT Make Motor Bicycle do you fancy? We can supply and give early deliveries. We have actually in stock new Triumphs, Premiers, and Bradburys, cash or instalments.—Parker and Son, St. Ives, Hunts.

EASTER Bargain.—3½h.p. motor cycle, nearly new, Chater-Lea, spring forks, twin accumulators, unpunctured Continentals, h.b. control; exchange with cash magneto machine, or sell dirt cheap.—Copeman, High St., Lowestoft.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

PREMIER, 1910, 3½h.p., twin, for immediate delivery; cash or exchange.—Stour Cycle Depot, Stourbridge.

TRIUMPHS, 1910 models in stock; also several good 1909 standards from £34.—Stour Cycle Depot Stourbridge.

5-6h.p. 4-Cyl. F.N., 1909 model, in good condition; £32, or exchange Triumph.—Withers, High St., Stourbridge.

SCOTT 2-Stroke, Matchless, and Moto-Reve in stock at the Stour Cycle Depot, Stourbridge.

MOTOSACOCHE (accumulator), Druid spring forks, in splendid condition; £15.—Dr. Burd, Upton-on-Severn.

TRIUMPH Motor Bike, 1908, 3½h.p., Bosch magneto, lamp, horn, tools, splendid condition.—Simms, Upton-on-Severn.

3½h.p. N.S.U., late 1909 model, absolutely good as new; not done more than 100 miles; £30.—Hopkins, Woodleigh Rd., Ledbury.

£12.—3h.p. Automotor, splendid running order; reason of selling going abroad; approval, deposit.—Haines, 3, Caerau Rd., Newport, Mon.

TRIUMPH, 1908 (delivered November), little used, splendid condition, lamp, horn, magneto cover, accessories; £30.—Paxman, Tewkesbury.

£14.—3½h.p. White and Poppe, new tyres and accumulator, B. and B., h.b. control, water-cooled head; bargain.—Stimpson, Peckersleigh Rd., Malvern.

1907 5h.p. Twin Vindec Motor Bicycle, spring forks, magneto, and Millford castor wheel sidecar; £30; approval; deposit.—Hitchings and Son, Evesham.

6h.p. Bat-J.A.P., 2½in. and 2¼in. Continentals, Whittle belt plating, enamelling, re-bored cylinders, pistons, rings, Amac, h.b.c., all new; genuine bargain, £25.—Herbert Titt, Warminster.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

BAT, 82 by 80, perfect, low frame; £11.—206, Stockwell Rd., Brixton.

3½h.p. Minerva (genuine); nearest offer to £14; must sell.—Herd, Oolnbrook Bucks.

1908 Rex, 3½h.p., excellent working order, good condition; £16.—Col. Bagnall, Jersey.

MORRIS, Holywell, Oxford, for second-hand Triumphs. Fair prices, fair dealing.

MORRIS for immediate delivery of 1910 free engine and standard Triumphs, Indians, Douglas, V.S.; early delivery of P. and M.'s.

N.S.U., 3½h.p., magneto, 1908, brand new; clearance price, £24, no offers.—Below.

HUMBER, 1909, 3½h.p., two-speed gear, as new; £30.—Below.

TRIUMPHS, 1910, delivery from stock; second-hand Triumphs taken in part payment.—Laytous, Bicester.

£7 10s.—2h.p. Minerva, very fast, perfect, reliable, tyres good; photo sent.—119, High St., Eastleigh.

ONE New 1909 F.N., 5-6h.p., Cowey's speedometer, Brooks spring seat, two studded tyres; what offers?—See below.

ONE New 1909 Triumph, 3½h.p.—See below.

ONE Second-hand 3½h.p. Quadrant, magneto, Brooks spring seat, spring forks, in grand condition; £20.—See below.

ONE 3½h.p. Minerva, accumulator, B.S.A. frame, 28in. wheels, stand-carrier, tyres, good condition; £13 or near offer.—Randall, High St., Andover.

MOTOR BICYCLES FOR SALE.

BAT, 2¾h.p., genuine De Dion engine, modern handlebars, low sad le, footboards, good general order; £9.—Heyb urn, Motors, Maidenhead.

4-CYL. F.N., 4½h.p., 1908, good condition, just overhauled, footboards, starts at walking pace, magneto; £18.—Tucker, Nurseries Faringdon, Berks.

IN Tune for Easter.—1909 3½h.p. Rex ridden 300 only, cost £46, £32 secures; also Fairy lightweight, new condition throughout, £14.—Eastleigh, Cookham Rise, Berks.

TRIUMPH (December, 1908), studded Shamrocks, adjustable pulley, spring seat-pillar, splendid condition, spares, accessories, plating unscratched; £32.—T. Milner, Tewkesbury.

1909 Midget Bicar, 3½h.p., dual ignition, h.b.-controlled Amac, not ridden 500 miles, thoroughly up-to-date p i [illegible]dition; £50.—J. Kington, 1, Hamilton Rd., Reading.

F.N., 4-cyl., 6h.p., with Mills-Fulford sidecar, nearly new, speedometer, lamps, spare tubes and non-skid tyres; price £45, real bargain.—Alsford, 43, Palmerston Rd., Boscombe, Bournemouth.

ROC, 4h.p., military model, two-speed gear, free engine, magneto Amac h.b. control lamp, horn, carrier, toolbag, new belt; £20; bought new one.—Freeman, 151, Barton St., Gloucester.

1909 Triumph, as new, done 1,800 miles only, Palmer cord tyres, Triumph lamp horn more than £5 worth extras; £36, or exchange for 5 or 6h.p. powerful two-speed 1909 motor with sidecar.—John Webber, Craufurdrise, Maidenhead.

TRIUMPH, late 1909 practically unused, R.O.M. non-skids, and 1910 Mahon clutch fitted, lamp, horn, cyclometer, petrol filter, spare pair Clincher non-skids; cost over £60, £48, or near offer.—New, Winchcombe, Glos.

£9.—3h.p. Raleigh-Fafnir, chain drive, new chains accumulator, and nearly new covers, Dunlop front and John Bull non-skid ba k new tree wheel, just overhauled, good hill-climber; no offers.—G. Reeves, Brooklyn, Farnborough, Hants.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

BRADBURY, 1910 models, and exchanges.

BRADBURY, the rigid machine.

BRADBURY, the well balanced engine.—Sola agents for N.W. London, Gardner, 6a, High St., Hampstead.

ECLIPSE.—3½h.p. Rex motor bike, spring forks, Bowden control; £12 10s.

ECLIPSE.—3h.p. Kerry motor cycle, vertical, fine order; £3 10s.—255, Earlsfield Rd.

WILTON.—Twin Minervas, 4½h.p., good tyres and series; £18 each.

WILTON.—2¾h.p. Minerva, ditto; £9.

WILTON.—2¾h.p. Ariel, ditto; £8.

WILTON.—3½h.p. Rex; £9.

WILTON.—Tricar frame, wheels, and steering, £3; 5h.p. water-cooled Aster engine, with clutch, £4 10s.; 2¾h.p. De Dion engine, water-cooled head £2 10s.; De Dion trike frame and wheels, £1.—Wilton Cycle Co., 110, Wilton Rd., Victoria Station, S.W.

EAGLES.—Bradbury, 1909, Bosch magneto, spring forks, Clincher studded tyres, equal to new; £28.

EAGLES.—N.S.U., 3¾h.p., 1908, magneto, low built, two-speed gear and free engine; £25 10s.

EAGLES.—Triumph, late 1908, Mabon clutch, splendid condition; £30.

EAGLES.—N.S.U., 4h.p., model de luxe, 1909 magneto, spring forks, handle-bar control two-speed gear and free engine, new condition; £33 10s.

EAGLES.—Humber, 3½h.p., 1909 Bosch magneto, Druid forks, two-speed gear, as new; £30.

EAGLES.—N.S.U., 6h.p. Twin, 1908 Bosch magneto, spring forks, R.O.M. tyre, two-speed gear and free engine, Millford sidecar; £38 10s.; guaranteed perfect.

EAGLES.—Minerva, 2¾h.p., M.O.V., low built, 26in. tyres, in good order; £6 10s.

EAGLES.—N.S.U., 3½h.p., magneto, adjustable pulley, excellent condition; £18 10s.

EAGLES.—Any of the above can be had approval; deposit.

EAGLES.—We have a few brand new N.S.U.'s, finished in latest style; 3h.p. £25, 3½h.p. £31; 3¾h.p., £32; 6h.p. twins, £40, two-speed gears, £5 15s. extra; exchanges entertained; deferred payments.

EAGLES and Co., High St., Acton.—N.S.U. West London District Agency, 1910 models from stock; liberal allowances for machines in part payment; deferred payments.

EAGLES.—N.S.U., 2¾h.p., twin, lightweight, 1909, mechanical valves, under-geared pulley, Bosch magneto, as new; £28 10s.—High St., Acton.

3h.p. Quadrant, good order, just done up; £10 quick sale.—85, Beaconsfield Villas, Brighton.

AT LAST!

A passenger machine at little money.

We have secured a few BRAND NEW 1909½ 5 h.p. Twin REX DE LUXE machines. SPECIFICATION: 5-6 h.p. twin engine, Roc two-speed gear and free engine, handle starting, Bosch magneto, B. and B. carburetter, h.-b. control, Continental rubber non-skid tyres, Rex spring forks, and cantilever seat. Our price £48, our price.

This year's pattern will cost you £62.

ALSO a few new 1909 Twin 5 h.p. REX Tourist Models. Our price £37, our price.

ALSO a few New 1909 3½ h.p. REX Tourist Models. Our price £35, our price.

CASH, CREDIT, OR EXCHANGE.

1909½ 3½ h.p. REX Racer, soiled only	£32	10
1908 Twin REX, magneto, h.b. control ..	£26	0
6 h.p. Twin REX, spring forks, 26" wheels	£16	10
6 h.p. Twin REX and Sidecar	£20	0
3 h.p. CLYDE, magneto, Druids	£15	0
3 h.p. VINDEC, Bosch magneto	£16	0
3 h.p. VINDEC, magneto, H.B. control....	£18	0
1910 3¾ h.p. PREMIER, twin-cylinder	50 gns.	
1908 3½ h.p. REX, almost like new	£22	0
1908 3½ h.p. GRITZNER, mag., free engine	£18	0
1908 REX Lightweight, fine condition	£17	0
1907 3½ h.p. REX, lovely goer, very smart	£15	15
3½ h.p. N.S.U. magneto ignition.....	£15	0
3½ h.p. REX, M.O.V., spray	£10	10
3½ h.p. 1906 REX, M.O.V., spring forks ..	£14	0
3½ h.p. REX, Bosch magneto, fine goer....	£16	0
Brand new 1909 Twin REX DE LUXE....	£48	0
Brand new Twin REX Tourist.....	£37	0
Brand new 3½ h.p. REX Tourist.....	£35	0

LIGHTWEIGHTS.

1908 N.S.U. Lightweight, Bosch magneto ..	£17	0
1908 REX Featherweight, magneto	£18	0
Twin-cylinder FAIRY, very smart.....	£14	0

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Rex	£9	2½ h.p. Stevens	£7
3½ h.p. Rex, M.O.V.	£10	3 h.p. Chater-Lea....	£9

£5 down SECURES ANY OF THESE. BALANCE 5/- PER WEEK.

3 h.p. Vindec, mag.	£16	Twin Fairy	£14
3½ h.p. Rex, mag. ..	£16	3½ h.p. 1906 Rex..	£14

BRAND NEW 1909

5½ h.p. O.H.A.V. VOITURETTES,

complete with hood, lamps, tools, and spares, £80 each. Magneto Ignition £5 extra.

Very fine 5½ h.p. REXETTE TR.CAR, spring frame, water-cooled, two speeds £24 0

FARRAR'S HALIFAX SIDECARS.

WE MAINTAIN

Owing to our unique mode of attachment and correct balance we have in the "Halifax" the best and safest sidecar on the market. Note where the front arm grips the centre of the sidecar, and compare this design with the lob-sided and unmechanical attachment adopted by some makers.

£4 17s. 6d. complete with best tyres.

Twelve months' guarantee. Discount to the trade.

MISCELLANEOUS BARGAINS.

Rigid Sidecar, 24in. wheel	£3	0
" " 26in. "	£3	10
" " 28in. "	£3	0
1909 Halifax Sidecar, 26in. wheel	£3	15
6 h.p. Water-cooled Engine, brand new....	£8	0
2-speed Gear Box, new, unused	£3	0
8 h.p. Twin Rexette Engine, two speeds ..	£12	0
5 h.p. Twin Standard Engine	£4	0

IMPORTANT.—Our works are closed Good Friday, Easter Monday and Tuesday.

Get our Price list. Remember we are the cheapest firm alive. "Small profits and quick returns" is our motto. Highest as much cash as wanted. Cash waiting.

Farrar's Motor Works,

Square Road, HALIFAX.

Telephone 919.

MOTOR BICYCLES FOR SALE.

REY, 5, Heath St., Hampstead. Tel.: 2678, P. Terms, cash or extended payments.

HAMPSTEAD.—3h.p. Clyde, magneto, good order, with accessories; £12 bargain.

HAMPSTEAD.—1910 Rexes, all models in stock; extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; change or gradual payments taken; no extra.

HAMPSTEAD for Stewart's speedometers; in stock, no waiting; 55s., fitted free.

HAMPSTEAD.—Premier, 1910, twin, as new, all accessories; great bargain, £42 only.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting; easy payments taken, 5 per cent. extra.

HAMPSTEAD.—Douglas, 1909, twin, magneto, spring forks, splendid condition; £25, bargain.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4½h.p., late model, splendid condition, all accessories; £20, special bargain.

HAMPSTEAD.—F.N. 4½h.p., latest model, handle bar control, condition splendid, with accessories, £24.

HAMPSTEAD.—F.N., 6h.p., late 1909, 2½ tyres R.O.M., splendid condition; £28, cost £51.

HAMPSTEAD.—Ariel, 3½h.p., good condition, all accessories, new Palmer tyre; bargain, £10.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Lincoln Elk, latest, 1909, 3h.p., splendid condition, with all accessories; £18.

HAMPSTEAD.—Peugeot, 7-9h.p., 1909, very low, condition like new; cost £60, take £27.

HAMPSTEAD.—£5 upwards allowed on cyclea in part payment for new motor cycles.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD.—Moto-Reve, latest 1909 model, shop soiled condition; special bargain, with accessories £25.

HAMPSTEAD.—Moto-Reve, new condition, 1909, accessories, spring fork, magneto; special bargain, £26

HAMPSTEAD.—Moto-Reve, 1908, twin, magneto and spring forks, all accessories; £17

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexs, Humbers, etc.; exchanges or gradual payments.—Rey, 5, Heath St. Tel.: 2678 P.O., Hampstead.

2¼h.p. English Mechanic Cycle; £7 7s.; and several others.—Wade, 84, Queen's Rd., Peckham.

F.N., 2¾h.p., spring forks, h.b. control, good condition £12 10s.—63, Hampstead Way, Golder's Green.

BRADBURY, 2¾h.p., £8; good going order.—Marshall, 29 Church Rd., Guildford.

£8 10s.—Brown, 2¾h.p. in condition.—S. Tanner, Vicarage Rd., Chobham.

3½h.p. Twin Peugeot, spring forks; bargain, £16.—65, Arendian Gardens, Wood Green.

TRIUMPH, 3h.p., magneto, good condition; £18 10s.—Tuckwell, 137, Kew Rd., Richmond.

TRIUMPH, 1910, delivery now from stock; £48 15s.—Rusticana, 523, High Rd., Chiswick.

£12.—3½h.p. Minerva, first-class condition, powerful reliable.—[illegible] Burgess Rd., Limehouse.

1910 F.N. Lightweight; cost £43, with fittings; sell £33; hardly used.—Tribe, Arona, Sunbury.

1909 Rex Twin, perfect condition, as new; £29.—F. 1, Fieldsway House, Highbury Crescent.

4h.p. Bat, Dion carburetter, coil, Clincher Dreadnoughts; £13.—31, Lauder Rd., Stockwell.

V.S. Twin, 1908 model, magneto, Truffault forks, perfect; £23.—8, Barrett St., Manchester Sq., W.

2¾h.p. Noble, vertical, just overhauled, riding condition; £8 10s.—68, Ancona Rd., Plumstead.

F.N., 4½h.p., late 1908, with 1910 fitments, guaranteed bargain, £25.—41, Ashford Rd., Cricklewood.

2¾h.p. Mitchell, vertical, low, long bars, in running order; £5 15s.—Stone, 44, Thord Hill, Thord.

2¾h.p. Chater-Minerva, low and reliable; £9, offer appointment.—227, Underhill Rd., E. Dulwich.

TRIUMPH, 1907, perfect, new cylinder; can be seen, £23, or near.—Hay, 24d, King St., Hammersmith.

3½h.p. Benz, two-speeds, in very good running order; £8 10s.; exchange.—14, Vanderbilt Rd., Earlsfield.

2¾h.p. F.N., splendid condition, new accumulator and belt; bargain, £12.—H., 57, Brookville Rd., Fulham.

MINERVA, 2¾h.p., splendid condition and running order; £6 15s.—57, D'Eynsford Rd., Camberwell Green.

3½h.p. Minerva, splendid condition, ride 50 miles to bona-fide; £15.—Sunny Bank, Leicester Rd., New Barnet.

3½h.p. Griffon-Zedel, Chater-Lea, Palmers, low seat, very powerful; £10.—Moody, 2, Oriental Place, Woking.

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES ROR SALE.

GENN'S, Wimbledon.—3½h.p. Minerva, spring forks, R.O M., Continental, as new; £19 10s.

GENN'S, Wimbledon.—3½h.p. Ariel, spring forks, Dunlops, carrier, etc., perfect order; £12.

GENN'S, Wimbledon.—3½h.p. Minerva, Dunlops, Brown and Barlow, Whittle belt, splendid climber; £10 10s.

GENN'S, Wimbledon.—2h.p. Minerva, Chater-Lea fittings, Palmers, good order; bargain, £8.

GENN'S, Wimbledon.—2-cyl. Alcyon, Dunlops, spring forks, been re-bushed, fast; £15 10s.

GENN'S, Wimbledon.—3h.p. Humber; see it go; £6.—Motor Works, Gap Rd.

NYE'S!—Sale Rooms. Special bargains for cash only to be cleared before Easter at specially reduced prices.

NYE'S!—4h.p. Roc, 1909 engine, Bosch magneto, two speeds; a bargain for £21.

NYE'S!—1910 2½h.p. Moto-Reve, used only for trial runs; £34.

NYE'S!—1910 Speed King Rex, only run a few hundred miles; £28.

NYE'S!—1910 P. and M., latest model.

NYE'S!—4h.p. Lagonda, No. 6 Chater-Lea frame, in good condition; £14.

NYE'S!—1909 6h.p. N.S.U., Mabon clutch, magneto; £31.

NYE'S!—2½h.p. Brown, magneto, Davison's tank; £16.

NYE'S!—2½h.p. Peugeot, low frame; £6.

NYE'S!—2½h.p. Kerry, low frame; £8 10s. Many others in stock. Exchanges arranged on all new models.—69, Leather Lane, Holborn, London. 'Phone, 6299 Holborn.

NO. 6 Chater, 3½h.p., very low, accumulator ignition, copper tanks, Price's stands.—Gown, New Barnet, Herts.

4-CYL. F.N.; £24 10s.; fine condition, perfect ignition, etc.; lightweight wanted.—80, Willesden Lane, N.W.

£10.—3½h.p. Rex, Clincher, low, takes sidecar, good condition; after 6.—G. Lamb, 139, Marylebone Rd., N.W.

£6, or offers.—2h.p. Minerva engined lightweight, going order, or exchange damaged machine.—1, Worcester Rd., Reigate.

MINERVA, 2h.p., Chater-Lea, condition and tyres good, reliable jigger; bargain, £6.—51, Whitney Rd., Leyton.

2½h.p. M.M.C., good running order, tyres good; a bargain. £8.—Faulkner, 47, Royal Oak Place, Elizabeth St., S.W.

3¾h.p. Premier Twin, ridden 200 miles, tools, lamp, horn; cost nearly £55, bargain, £45.—18, Allison Rd., Hornsey.

4h.p. Twin Kerry, No. 6 Chater frame, h.b. control, good tyres, enamelled grey, very smart; £16 10s.—29 East St., Barking.

BRADBURY, 3½h.p., 1910 models; £46; delivery from stock.—Bright and Hayles, 73, Church St., Camberwell.

BRADBURY, 3½h.p., 1910 models; exchanges and easy payments arranged.—Bright and Hayles, 73, Church St., Camberwell.

ENFIELD 2¼h.p. Lightweight; £38.—Agents: Bright and Hayles, 73, Church St., Camberwell.

ENFIELD 2¼h.p. Lightweight; exchanges and easy payments arranged.—Bright and Hayles, 73, Church St., Camberwell.

HUMBER, 1909 model, fitted with Roc two-speed gear, condition as new; £33 10s.—Bright and Hayles, Church St., Camberwell.

3½h.p. Rex Tourist, excellent condition; 11 guineas.—4, Harleyford St., Kennington, opposite Oval Tube Station.

3½h.p. Kerry, low frame, h.b. control, good tyres enamelled grey; 9 guineas; no offers.—29, East St., Barking.

3½h.p. Rex, low, long bars, Whittles belt, in good condition; £9 10s.—Motorist, 43, Carlisle St., Edgware Rd., N.W.

MINERVA, 4½h.p., twin, spring forks, Palmer, Continental, good condition; £18.—Augarde, 59, Robsart St., Brixton.

£25.—5½h.p. twin Zedel, h.b. control, magneto, Druids, Mabon clutch.—Freeman, 111, King George St., Greenwich, S.E.

TWIN Antoine, 6h.p., powerful machine, £16 10s.; 2¾h.p. Kerry de Luxe, £9.—Godfree, 124, Romford Rd., Stratford, E.

2¾h.p. Fairy Lightweight, twin, good condition, spring forks, stand; £8, or exchange bicycle and cash.—6, High Rd., Lee.

F.N., 1909 model, 4½h.p., new condition, h.b. control, footrests, all accessories; £30.—Tugwell, Belsize Crescent, Hampstead.

3½h.p. Rex, splendid condition, quite ready for Easter, low position; £7; appointment.—E. E. Fricker, 41, High St., Brentford.

A WORD to the WISE.

Please note that after March 31st our address will be

Westgate, HALIFAX.

These being larger and more convenient premises we shall be enabled to carry a still larger and more varied stock.

TO SAVE COST OF REMOVAL,
We are open to take RIDICULOUS PRICES for ACCUMULATOR MACHINES.

MAGNETO MACHINES AT RIGHT FIGURES.
NO EXCHANGES.

Brand New 1909 TWIN REX DE LUXE, two-speed, magneto, spring forks and seat, Roc clutch, handle starting, non-skid tyres, and the ideal sidecar mount, 5½ h.p., guaranteed new .. £47 10

Brand New 1909 3½ h.p. TOURIST REX, five to fifty miles per hour, guaranteed new £33 10

1909 TWIN REX DE LUXE, two-speed, Roe clutch with sidecar, second-hand, but practically equal to new, 2½in. R.S. Clincher Dreadnoughts, 1¾in. belt, and will do 45 m.p.h. with twenty-four stones up; a regular knock-out £48 0

1909 N.S.U., 4 h.p., Modele de Luxe, magneto, M.O.V., handle-bar control, almost new..... £35 0

1909 REX SPEED KING, used in last Tourist Trophy, a really fast single, 1910 Amac adjustable jet carburetter £33 0

1909 3½ h.p. TOURIST REX, another specially good mount, low built, fast, and a model of reliability £28 10

5½ h.p. SPECIAL REX, very low, magneto, handle-bar control, exceptionally fast and good climber £29 10

3½ h.p. P & M., magneto, two-speed, spring forks, good condition, low cash bargain £31 0

1908 5½ h.p. TWIN REX DE LUXE, with Roc clutch, magneto, handle starting, rider sprung front and rear, a good mount for sidecar £29 10

ROC, 4 h.p., vertical engine, h.-b. control, magneto, clutch, rubber-studded tyres to both wheels, very low and good £20 0

1908 MOTOSACOCHE, in splendid order and condition, low, light, and handy, would suit a doctor £19 0

SINGER, 3 h.p., belt drive, high tension magneto, beautiful order and good condition..... £15 10

TWIN ANTOINE, 5½ h.p., very powerful, in fine condition, and goes well. Good for Sidecar.. £15 10

ANTOINE, 4 h.p., magneto, 26in. wheels, low M.O.V., a good machine at a low price £15 0

QUADRANT, 3¾ h.p., accumulator, spring forks, in good condition, and runs very well, low, and economical £15 0

REX TWIN, 5½ h.p., spring forks, good compression, good general condition, a very powerful machine, suitable for sidecar work, at a decidedly low price £15 15

ARIEL, 3½ h.p., vertical engine, M.O.V., B. and B., Watawata belt, 26in. wheels, been used with trailer and sidecar, very cheap at £13 0

1906 3½ h.p. REX, low built, spring forks, M.O.V., long bars, cheap and good, especially at £12 0

ROVER, 3½ h.p., M.O.V., 26in. wheels, in splendid order, a bargain for a working man at £12 0

REX 3¾ h.p., H.B., control, very powerful, 22" frame, a good handy mount £10 0

HASKARD, 2¾ h.p., easy starter, trembler coil, very flexible engine, and capable of a really good turn of speed, in very good condition £10 0

ALLDAYS, 2½ h.p., vertical, 26in. wheels, good tyres, spring forks, with carrier, and in good working order £9 10

BRADBURY, 2½ h.p., vertical, new tyre, girders, spray, V belt, cheap and good £9 5

BEESTON-HUMBER, spray, chain drive, 3 h.p., but pulls like a 3½ h.p., and a gift at £9 0

EXCELSIOR, in splendid condition, and beautiful order, good tyre, good everything. 3½ h.p..... £9 0

REX, 3¾ h.p., the John-o'-Groat's model, 22in. frame, an orphan who requires a good home for MINERVA, 2½ h.p., splendid condition, goes like a clock, and fit for anyone..... £8 15

ARIEL, 2½ h.p., light machine, low and in running order, dirt cheap at £8 10

KERRY, 2½ h.p., 26in. wheels, spray, Palmer tyre, very low and handy, decidedly reasonable at .. £8 0

RALEIGH, 2 h.p. vertical, V belt, spray carburetter, two brakes, as good as a modern lightweight £8 0

QUADRANT, 1¾ h.p., very low, 26in. wheels, coil and accumulator, an easy winner at £7 15

Collier's Motories,

37, Park Cross Street, LEEDS

(facing Town Hall).

MOTOR BICYCLES FOR SALE.

1910 Triumphs, Rex, P. and M., Douglas, Kerry-Abingdons, etc., in stock at the Eastern Garage Co.'s depot at 418, Romford Rd., Forest Gate. We shall be pleased to quote allowances for second-hand machines. The following are thoroughly reliable:

1909 Triumphs, with first-class accessories; £34 each.—Below.

1908 Triumph, lamp, generator, horn, etc., guaranteed perfect; £28.—Below.

1909 Tourist Rexes, 3½h.p., complete with accessories; £28 each.—Below.

1908 Rex, 3½h.p., T.T. engine, magneto, spring forks, rubber studded tyre, all accessories and tools, a splendid machine; £20.—Below.

1908 Roc, 4h.p., military model, two-speed gear and free engine, Bosch magneto, h.b. control, new R.O.M. combination tyre, appearance and condition perfect; £25.—Below.

1909 Peugeot, 5h.p., Chater, adjustable pulley, R.O.M. and Palmer cord covers, Davison's gauges and fillers, F.R.S. lamp, etc.; £20.—Below.

1909 Minerva, 4½h.p., twin, magneto, spring forks, Roc two-speed and clutch, Amac carburetter, 2¼in. Palmer cord tyres, numerous refinements, ideal machine for sidecar; £33.—Below

1909 Minerva, 3½h.p., magneto, spring forks, Amac carburetter, entire handle-bar control, several special fittings, grey finish, good as new; £26.—Below.

1906 Minerva, 2¾h.p., Bowden h.b. control, low built, perfect order guaranteed; £12.—Below.

THE Eastern Garage Co. have, in addition to the above, a number of good machines at prices ranging from £7. Please favour us with a visit at 418, Romford Rd., Forest Gate, or telephone, Stratford 10. Telegrams, Egaraco, London.

F.N., 4½h.p., 4-cyl., late model, magneto, spring forks; £25.—17, Algarve Rd., Wandsworth.

3h.p. Quadrant, spring forks, inclined, pulls sidecar; £7, or offer.—52, Perry Hill, Catford.

3½h.p. N.S.U., spring forks, Watawata, new, spares, ready for Easter, splendid condition; £17, or nearest.—Motor, 20, Tresco Rd., Peckham.

LIGHTWEIGHTS.—Moto-Reve and Enfield, ready for despatch; your present motor in exchange.—Bunting, Wealdstone.

3½h.p. Minervas, several for sale, cheap; also others from £4 10s.—Bunting, Wealdstone.

PREMIERS.—Immediate delivery; call and inspect.—Sole agents, Reigate and Redhill, Tamplin and Makovski, Ltd.

TRIUMPH, 3h.p., magneto, studded tyre, new belt, spring forks, in good order; £22.—W.B., 1, Nevada St., Greenwich.

BRUNEAU, 2½h.p., re-enamelled, good condition, low, fast, staud, carrier, new tyre; £15.—Tilley, Northwood, Middlesex.

TRIUMPH 1909, splendid condition, Autoclipse lamp spares; £32, no offers.—Miller, 44, Longfield St., Wandsworth, S.W.

3½h.p. Vindec Special, magneto, new Dunlops and belt, latest h.b. control, complete; bargain, £16.—A. Staples, Woking.

ROC, 4h.p., two-speed, late 1908 Military model, Bosch, starting handle, perfect for sidecar; £29.—Rix Broadway, Cricklewood.

TRIUMPH, 1909, unscratched, magneto, spring forks, Dunlops, accessories, guaranteed as new; £35.—15, Sandyhill Rd., Ilford.

1908 3½h.p. Rex, perfect condition, and very little used, splendid hill-climber; price £25.—"A.," 3, Leaside Av., Muswell Hill.

MINERVA, 2¼h.p., Chater-Lea, Longuemare, good running order; £10; after seven, evening.—177, Loughborough Rd., Brixton, S.W.

V.S., 5h.p., twin, new April, 1909, little used, perfect, S.E. tyres, 2½, complete with spares, horn, etc.; £35.—121, Beaufort St., S.W.

2h.p. Chater-Lea-Minerva, re-enamelled and plated, and new piston and bushes, perfect; £10.—Baker, Waldegrave Rd., Teddington.

3½h.p. Brown, magneto, 26 by 2½ Palmer cord tyres, £13; also E.I.C. trembler coil, 8s. 6d.—136, Sebert Rd., Forest Gate, Essex.

N.S.U., 3½h.p., 1908, magneto, tools, spares; reasonable offer, or exchange 4 or 5h.p. twin same make.—Jupe, 49, Minet Av., Harlesden.

2¼h.p. Sarolea, h.b. control, low built, spring forks, faultless condition, very reliable; £12.—Fowler 6, Marland Terrace, Chislehurst.

ELEPHANT Motor Mart, sole London agents for the All-British Arno, with every refinement, at £45; liberal exchanges on present mount.

ELEPHANT.—Motor bikes from £4; sidecars, £3 10s.; tricars, £12; cars, £20; covers, 12s. 6d.; tubes, 5s. 6d.; headlights, with divided fronts and separate generators finest on the market, 16s.; Dwarf 15 amp accumulators, guaranteed, 7s. 6d.; Chater No. 6 frame in nearly new condition, 45s.

ELEPHANT. — Adjustable pulleys, simplest and cheapest on the market, from 7s. 6d.; let us quote you. We carry a large and varied stock of new and second-hand fitments; machines and motor goods bought, sold, or exchanged.—Elephant Rd., London.

MOTOR BICYCLES FOR SALE.

WHITTLE'S.—F.N., 4½-5h.p., 4-cyl., magneto, Amac, h.p control, spring forks, unscratched; £28.

WHITTLE'S.—Fairy, 6-8h.p., twin, Chater-Lea No 6, spring forks, excellent order; sacrifice £18 18s.

WHITTLE'S.—Minerva, 4½h.p., twin, M.O.V., spring forks, very fast, perfect order; £16 16s.

WHITTLE'S.—Humber, 3½h.p.; £7 15s.—Whittle's Motor Exchange, Earlsfield. 'Phone, 711, P.O., Wimbledon.

3½h.p. N.S.U., spring forks, Palmer cord, butt-ended tube, complete; £12, lowest.—F. Jermy, Frimley Green, Surrey.

3h.p. Fafnir, Chater-Lea, Palmers, low, long bars, splendid condition; any trial; £10 10s.—2, Wincott St., Kennington.

2¼h.p. Lightweight, low, sprung seat, long handles, excellent order; fullest inspection; £7.—Girling Market St., Woolwich.

REX Twin, 5h.p., take sidecar anywhere, fast and reliable; easy starter, engine overhauled; £14.—26, Canonbury St., Islington.

2½h.p. 1909 Triumph, Palmer cord tyres both wheels; £55; guaranteed.—At Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

2¾h.p. Minerva, spring front forks, standard machine; £12 10s.; guaranteed.—At Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

TRIUMPH, 1909, new June, ridden 2,000 miles, searchlight lamp, spares, like new; £35.—53, Kingsley Av., West Ealing, London.

6h.p. Brand New Twin Antoine, Chater No. 6 frame, 2 Palmers. £27 10s., or exchange 3½ and cash.—59, Barking Rd., Canning Town.

2¾h.p. F.N., magneto, spring forks, sound machine; £15 nett; guaranteed.—Seen at Wauchope's, 9 Shoe Lane, Fleet St., London, E.C.

2¾h.p. F.N., £10; all accessories, including gas lamp, good tyres, take gent's cycle and £5; must sell.—462, Green St., Upton Park, E.

SPLENDID 2¾h.p. Clyde, magneto ignition, Clincher tyres, perfect condition; any examination; £10, bargain.—101, Kingsway, Mortlake.

BARGAIN.—2¾h.p. F.N., Chater-Lea, nearly new tyres, unpunctured, non-skid back, battery; £12 10s.—236, Corporation St., Plaistow.

1910 Triumphs, Humbers, and Bradburys, instant delivery; liberal allowances on second-hand machines.—128, High Rd., South Tottenham.

2¾h.p. Kerry, low built, splendid goer; to clear £7 15s.—128, High Rd., Tottenham.

4-CYL. F.N., magneto, spring forks, 4½h.p., perfect condition; £25.—Below.

3½h.p. Fafnir, Chater 6 frame, magneto, h.b. control, every refinement; £25.—Below.

£7 10s.—2¾h.p. Brown, £7 10s.; 2¾h.p Kerry, £9 10s.; 2¾h.p. J.A.P., all in excellent condition, and good running order; to clear.—128, High Rd., South Tottenham. 'Phone, 1982 Tottenham.

3½h.p. (about), Roc clutch, and two speeds, spring forks, very low, h.b. control, worth snapping; £15.—17, Kenmure Rd., Mare St., Hackney, London.

FAFNIR, 3h.p., Chater-Lea, in splendid condition for Easter tour; bargain at £13 10s. cash; will climb anything.—13, Somerville Rd., New Cross.

1908 Rex, 5½h.p. twin, magneto, splendid running order, numerous extras; going abroad; £18 10s.—Chauffeur, 3, Elms Mews, Paddington W.

TRIUMPH, 1909, fitted with speedometer, searchlight lamp new Rom tyres, tools, etc.; £35.—Bramfield, 28, Lithos Rd., Hampstead, N.W.

7h.p. Twin Peugeot, Mahon clutch, R.O.M. ignition, R.O.M. back tyre, studded Brooks B100, footboards; £18.—Butler, 22, Rosemont Rd., Acton.

TRIUMPH, 1910, brand new, delivered shortly, Cowey speedometer fitted, F.R.S. lamp, generator; £49.—15, Glenshaw Mansions, Brixton Rd., S.W.

LIGHTWEIGHT, £10, nett.—Werner, 2h.p., never been used, low frame, 26in. wheels, V belt, only wants seeing.—Davies, 53, Clapham Rd., S.W.

5h.p. Twin Vindec Special, 1909 model, magneto, Truffault spring forks; 19 guineas; guaranteed.—At Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

3½h.p. N.S.U., spring forks, magneto ignition, nice condition throughout; £15; guaranteed.—Seen at Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

TRIUMPH, 3h.p., new accumulators, Shamrock studded tyre, 26 by 2¼, Lucas Acetylene lamp, just overhauled; £15, or near.—Rawlinson, Kearsney Dover.

MOTO-REVE, all grey, latest twin model, new, ridden once, magneto, footrests, horn, lamp; 28 guineas, lowest.—30 Smith's Terrace, King's Rd., S.W.

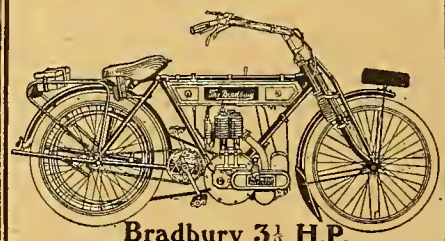
ALSO 1909 Triumph, as new; £34; with speedometer and racing bars, wheels, covers, £44, cost nearly £70.—30, King's Rd., London, S.W.

2h.p. Chater-Universal, as new, F.N. carburetter, covers, tubes new, enamelling, plating, unscratched; £9.—Particulars, Dawson, Ferry Rd., Teddington.

IF You Want Bargains in second-hand motor cycles you can get them at Wauchope's, 9, Shoe Lane, Fleet St., London (just off Ludgate Circus).

READ THIS

Unsolicited Testimonial from Mr. A. Rudd of St. Helen's as to the merits of the 1910



Bradbury 3½ H.P.

West View, St. Ann's Road,
March 14, 1910. St. Helen's.

After giving your 1910 motor cycle (with free engine in back hub) exhaustive trials, I am delighted with it.

I obtained one of your 1909 machines, and but for an accident should have been riding it to-day, as I was very well satisfied with it, especially with the engine, and its general efficiency and comfort.

When I saw your 1910, I was so attracted by the very great improvements all over the machine, that I decided on having one, and although pleased with 1909, I am most agreeably surprised with this 1910. The engine is more powerful, it walks up hills, and picks up in the middle of steep gradients, which I had to rush when riding one of the best known makes of the same horse power. The plate clutch in the back wheel enabled me to put the engine to a severe test. I let out the clutch on the steepest part of a stiff hill, and came to a standstill. I gently applied the clutch, and glided away in a most gratifying manner. The springs you are now fitting are splendid, and although 1909 was comfortable, 1910 takes the biscuit in this respect. It is like sitting in a car.

I was beginning to think that I was getting past motor cycling, as I am no longer an agile youth, but the clutch has rejuvenated the sport for me.

I have no doubt I shall use this machine more frequently than ever both for business and pleasure. I am not interested in your bicycles any more than that I happily possess one, but I am so pleased with it, that I thought I ought to let you know. You may use this letter where and how you think fit.

Wishing you the success which your machine deserves to obtain for you in the motor cycling world,

Yours faithfully, A. RUDD.

A Bradbury Motor Cycle invariably satisfies the most critical motorist.

Price List and name of nearest agent on application to

BRADBURY & Co., Ltd., OLDHAM.

MOTOR BICYCLES FOR SALE.

MOTOSACOCHE, 1909, low frame, not ridden 1,500 miles, spring forks, many spares, perfect order; £17.—Tudor, 60, Kingscourt Rd., Streatham, S.W.

1¾h.p. F.N. Lightweight, magneto, spring forks, very little ridden, perfect condition, many spares; £14 15s.—Morgan, 3, Fenchurch Buildings, E.C.

2¾h.p. Griffon, Zedel engine, Dunlops (nearly new) Longuemare, new Dermatine, splendid condition; £11.—Lennard, 17, Endsleigh Gardens, Ilford.

TRIUMPH, 1907, magneto, improvements, lamp, horn, tools, spares, like new, excellent climber; £25 10s.—F. Watson 37, Bowerdean St., Fulham, S.W.

TRIUMPH, 3h.p., magneto, new Continental rear tyre, spring seat-pillar, good condition, very reliable; £17.—Abbott, 46, Peldon Av., Richmond, S.W.

1910 Triumph, Premier, F.N., and Moto-Reve; instant delivery; best prices in exchange; send particulars.—Batchelor and Co., Clarence St., Kingston.

2¾h.p. Peugeot, racing or touring, low, fast, handle-bar control, been about 800, with extras, £15; large Longuemare, B22, £1.—4, Maple Terrace, Surbiton.

5-6h.p. Twin Rex, spring forks, cantilever seat, Mabon clutch, detachable tubes, new tyre, splendid sidecar machine; 17 guineas.—6, St. Faith's Rd., Tulse Hill.

3½h.p. Minerva pattern motor cycle, B.B., handle-bar control, all accessories, low position, long handle bars, fast; £9.—Johnson, 8, Golden Manor, Hanwell.

3h.p. Quadrant, splendid hill-climber, £6 15s.; 2¾h.p. Chater-Lea frame, £4 10s.; good condition; wants tuning up.—Vickery, 1, King's Parade, South Ealing.

2h.p. Minerva Motor Cycle, tyres perfect, Bowden lift, stand-carrier, spray carburetter excellent condition £6, offers; must sell.—136, Lambeth Walk, London.

N.S.U., 3½h.p., magneto, new, not ridden 50 miles; obliged to give up riding; £28; will take less if sold at once.—Apply, Gray, 86 Uxbridge Rd., Ealing.

FOR Sale, cheap, 3½h.p. motor cycle, splendid condition, enamel and plating as new, handle-bar control; can be seen and tried at 170, Fore St., Edmonton.

SINGER, 3h.p., wheel one side engine, handle-bar control, plating, enamel, tyres like new; £6 10s.; bereft for debt.—Ardea, 331a King St., Hammersmith.

6h.p. Twin J.A.P., Chater-Lea frame, beautifully sprung, engine just thoroughly overhauled, condition as new, very fast and powerful; £28.—26, Canonbury St., Islington.

SIX Motosacoche 1¾h.p. Lightweight Motor Cycles, from £12 10s.; guaranteed; excellent little goers.—Seen at Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

4h.p. Antoine Engine, Chater-Lea frame, long handle bars good condition hande-bar control; £14; buying car.—Miskin, Lambemurst, Lee Rd., Blackheath, S.E.

F.N., 1908 lightweight, magneto, spring forks, nearly new, not run 300 miles, grand opportunity to secure first-class machine; £19.—Ayton, Grocer, Berwick-on-Tweed.

2¼h.p. J.A.P.-Triumph Engine, low saddle, spring forks, 2 tyres and belt nearly new, £6 15s.; also forecar attachment, £2.—Dee, 34, Aberdeen Rd., Wealdstone, Harrow.

SIX Second-hand 1909 Moto-Reves, twin engines, lightweight motor cycles; at £25 each, usual cost 36 guineas.—At Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

BARGAIN.—3½h.p. Stevens, low built, guaranteed new condition throughout, and perfect running order, new lamp, horn; £9 10s.—Boot Shop, 97, High St., Putney, S.W.

MOTO-REVE, twin-cyl., just cost £40, with spare belt and accessories, ridden 300 miles; price £25; exchange for Triumph.—E. H. Lambert, Land Agent, Matfield, Kent.

FAFNIR, 3h.p., long handles, low seat, variable pulley, tyres unpunctured, fast, splendid hill-climber, pulled sidecar; £10; trial, appointment.—Holliday, Stansted, Essex.

EXCEPTIONAL Bargain.—3h.p. Auto, grand machine, in splendid condition, spring forks, stand, lamp, and all spares; £11.—Plowman, 9, Newington Green Rd., Islington, N.

3½h.p. Minerva, 1907, carefully driven, French grey, Continentals, 26 by 2½, low, fast, complete machine; £12 10s.—G., Belgrave Mansions, Coldharbour Lane, Brixton.

2¾h.p. Motor Cycle, just thoroughly overhauled, full set of spare parts; £12, or reasonable offer, a bargain for Easter (private).—D., 107, Elliscombe Rd., Charlton, Kent.

REX Featherweight, 2¼h.p., magneto, spring forks, Brooks belt, Palmer tyre, new lamp, tools, stand, splendid condition; £17 cash.—Motorist, 89, Oxford Rd., Walthamstow.

N.S.U., 5½h.p., twin, two-speed gear, spring forks, 2 Palmer cords, two accumulators, and nice wicker sidecar, perfect condition; £27; with week instructions (evenings) to beginner, £28.—41, Ashford Rd., Cricklewood.

3½h.p. Vindec Special, Peugeot engine, magneto, B. and B. carburetter, Michelin heavy tread and Peter-Union, almost new, and not ridden 300 miles; accept £30 or exchange small car and cash.—140, Napier Rd., Leytonstone.

MOTOR BICYCLES FOR SALE.

REX, 1909, twin tourist, condition better than new, fast and reliable, must be sold; buying Speed King; sacrifice £28; with accessories.—16, Haverstock Hill, London.

1908 Moto-Reve, 2h.p., magneto, spring forks, French grey, magnificent compression, splendid hill-climber, wonderfully reliable.—86, Colvestone Crescent, Dalston, London.

SPLENDID Bargains in second-hand motor cycles at Wauchope's from £6 10s.; inspection cordially invited.—Call at 9, Shoe Lane, Fleet St., London, off Ludgate Circus, E.C.

MOTOSACOCHE, 1909, magneto, Druid forks, Palmer tyres, lamp, horn, stand, etc., perfect condition; 24 guineas; seen by appointment.—C., 42, Cambridge Rd., Bromley, Kent.

3½h.p. 1909 Humber, grey finish, latest exhaust box, magneto, and Druid spring forks; 26 guineas; guaranteed.—At Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

LAURIN-KLEMENT, 4h.p., twin, fast, and powerful, excellent going order, magneto, spring forks, tyres splendid condition, spares; £16.—Pond, 349, West End Lane, Hampstead.

MOTOSACOCHE, spring forks, Palmer cord back, very little ridden, splendid condition; £19, or part exchange first-class cycle (27in.).—Tavener, Holmbury, Salway Hill, Woodford.

LIGHTWEIGHT, splendid condition, 1¾h.p. De Dion, bored out to 2h.p., tyres almost new, trembler coil, just overhauled; £6 10s.—Durrant, 16, Portland Rd., Bishop's Stortford.

3½h.p. Fafnir, Amac, low Chater, new Palmer cord, A Won front, splendid order, £14; 2¾h.p. Pebok, very low frame, perfect order, complete, £7 15s.—Townsend, 162a, Dalston Lane.

MOTOSACOCHE, 1908, accumulator, engine first-class condition, overhauled by makers, where can be inspected, not having been since used; £18.—Norman, Model Village, Purley.

LADY'S Lightweight Magneto Cycle, Bosch, Amac, two speeds, Clement engine, mud shields, covered chain drive, just delivered; sacrifice £25.—Studio, 61, Denmark Hill, Camberwell.

5½h.p. Twin Rex, not been 500 miles (guaranteed perfect), looks just like new, complete with tandem attachment; would take sidecar anywhere; £16 10s.—6, Jewlett Rd., Peckham Rye.

AFTER You've Scanned these announcements, before deciding, write to, or call on, Pullman Bros., London Rd., Norbury, London, for a list of good machines at really marvellously low prices.

4½h.p. 4-cyl. F.N., R.O.M. non-skids both wheels, lamp, horn, tools, nice condition; best possible bargain; price 24 guineas; guaranteed.—At Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

3½h.p. Rex, fitted with 1909 Osborne 4-speed free engine pulley, handle start, spring forks, in perfect order, take sidecar anywhere; bargain, £10.—Johnson, 36, Kensington Gardens, Brighton.

3½h.p. 1908 Minerva, Palmers, electric headlight, two brakes, footboards, accumulator ignition, 1910 crown and Barlow, fast, low, and powerful; £16; trial.—229, Burdett Rd., London, E.

4h.p. Stevens, Rip, sprung frame (back and front), J.A.P. automatic lubricator, in fine condition, spare belt, valves, etc., first-rate touring machine; bargain, £17 10s.—58, Wallwood Rd., Leytonstone.

5-6h.p. 4-cyl. F.N., 1909 model, handle-bar control, condition like a new machine, fast, reliable, and powerful; 33 guineas; guaranteed.—Seen at Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

3½h.p. J.A.P., Chater-Lea frame, inclined engine, in perfect order, new tyres, spare belt, tools, separate generator lamp; bought car; £15.—Shubrook, 9, Cumberland Rd., Preston, Brighton.

EXCEPTIONAL Bargain.—3½h.p. Rex, spring forks, rubber studded Clinchers, accessories, all in new condition, guaranteed absolutely perfect; £12 10s.—64, Warwick Gardens, Harringay.

3½h.p. Minerva Lightweight, Chater frame, engine 4 practically new, good accumulator and tyres, mudguards, horn, carrier, and spares; lowest £5 15s.—H., 46, Manchester Rd., E. Twickenham.

3½h.p. J.A.P., low frame, spring forks, long handles, two accumulators, Brown-Barlow, Watawata and spare belts, footboards, lamp, and tools; £6 15s.—Tribble, 30, Queen's Rd., Peckham.

MINERVA, 2¾h.p., spring forks, in splendid condition, £12 12s.; 3½h.p. Pebok, nice machine, good tyres, £12; 1909 Triumph, unused, offers; exchanges.—Godfree, 124, Romford Rd., Stratford.

1909 Humber, 3½h.p., Roc two-speed, B. and B. carburetter, Whittle belt accessories, and spares, magnificent condition; £32 10s.—Thomas, 38, Ashburnham Park Villas, Shepherd's Bush.

3½h.p. Minerva, spring forks, Mahon clutch, footboards, complete handle-bar control, new R.O.M. non-skid, Brown and Barlow carburetter, Autoclipse, two generators, two large accumulators, horn, spares, including two butted tubes; £17.—20, Priory Gardens, Highgate, N.

FOR Sale, 3½h.p. Triumph, 1906, perfect running order, £17 (seventeen pounds); also 2¾h.p. Humber, leather metal clutch, chain drive, starting handle, two accumulators, £10 10s. (ten pounds ten shillings).—Rowland Williams, Motor and Cycle Works, Walton Rd., East Molesey.

CAMEL

Franco-British Exhibition 1908.

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As a chain is only as strong as its weakest link, a belt is only as efficient as its least considered essential.

The essential links in motor belting construction—Maximum effective pulling surface; Elimination of stretch; Tensile strength; Flexibility; Centring of core; Prevention of twisting, end breaking, and surface cracking—when evenly considered and supported by suitable materials and experience, ensure a perfect whole.

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BELTS

MOTOR BICYCLES FOR SALE.

QUADRANT, 3h.p., spring forks, B. and B., handle-bar control, just overhauled; 12 guineas; good push bike in part payment.—A.E., 130, Thurleigh Rd., Clapham Common.

TRIUMPH, 3½h.p., T.T., 1908, spring forks, splendid condition, £32; 3h.p. Triumph, late 1905, magneto, spring forks, ball bearing engine, cord tyre, unused; £17.—143, Well St., Hackney.

5h.p. Brown (twin), good order, inlet pipes, frame lugs, B. and B. h.b. carburetter, best twin coil and spares, £7; Chater-Lea tricar frame, 19s. 6d.; ditto tank, 6s. 6d.—Davis, 582, Romford Rd., E.

1910 Two-speed Humber for sale, including Dunlop studded back tyre, Brooks anti-vibratory seat, Autoclipse lamp and generator, Serpentine horn, exhaust whistle, Veeder, and numerous spares; this machine has run about 300 miles, and given great satisfaction, is in first-rate condition, and only being sold as owner is going abroad; price £42 10s. cash.—Apply to A.F.K., c/o Service Co., Holborn, London.

3½h.p. De Dion pattern, Chater-Lea frame, Peter-Union tyres, Stanley-Dermatine belt, footboards, dry battery, very fast machine, in good going order; cheap for £10.—Sylvenden, Enslin Rd., Eltham.

REX, 3½h.p., late 1909, as new, magneto, h.b. control, 2¼ Continentals, lamp, generator, horn, etc., climbs any hill; give any trial; buying small car; £30.—Write, J. Grove, Glencroft, Knights Hill, Norwood, S.E.

80 by 80 M.M.C., M.O.V., Chater No. 6, B. and B., h.b.c., Coventry Three Spires, footboards, lamp, stand, carrier, ready for road, only run 500 miles; seen evenings after 6.—8, Albyn Rd., St. John's, Lewisham.

AUGUST, 1909, 2¾h.p. twin lightweight N.S.U., just overhauled by makers, ridden 1,200 miles, perfect, R.O.M. back tyre, fast, silent; owner wants more power; 26 guineas.—H. Dawson, 111, Burnt Ash Hill, Lee, S.E.

VINDEC SPECIAL, 5h.p., magneto, Truffaults, new belt, B105, powerful, fast, low, excellent condition £21; also 3½h.p. Minerva, low, good condition, perfect running order, £11.—Pike, Barossa Terrace, Church St., Chelsea.

FAFNIR, 3½h.p., Bosch magneto, No. 6 Chater-Lea, 26 by 2¼ Palmer cords, large footboards, Simplex stand, lamp, generator, horn, tools, spare belt, valves, pulley, absolutely perfect; giving up; £22 10s.—Edward, White-horse Schools, Croydon.

2½h.p. Light Low J.A.P., perfect condition throughout, with all accessories, including spare cover, tube, and pulley, two accumulators, does not require one penny spent on it; £9, or near offer.—Barnes, 2, Balms Rd., Southgate Rd., Islington.

1910 Bat, 5-6h.p., standard model, twin engine, M.O.V., magneto, in tank, drip feed lubrication, adjustable pulley, stand, and carrier, not ridden 50 miles; £49, first cheque; guaranteed.—At Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

TRIUMPH, late 1909, free engine, practically new, run about 900 miles, Clincher studded tyres (unpunctured), Cowey indicator, Premier lamp, horn, mirror, all spares and tools; £45, cost over £60.—C. H. Beagley, 36, Pepys Rd., New Cross, London, S.E.

TRIUMPH, 1908, with 1909 engine, fitted Mahon clutch, Whittle and Stanley belts, large fibre case of spares, including plugs, valves, etc., Palmer cord tyres, spare tube, kept fully tuned up for sidecar; first secures £35; give trial run.—Ernest New, Gower, Chobham.

4h.p. Twin Werner, low, fast, powerful, for sidecar work, 26 by 2¼ rubber studded Clinchers, spring forks, Stanley-Dermatine ¾in. belt, Marconi accumulator, machine ridden 800 miles, tyres, etc., faultless guaranteed; trial; accessories; bargain, £15, or exchange.—17, Bedford Sq., London, E.

VINDEC, late 1908, in splendid condition throughout, tyres unpunctured, 3½h.p., F.N. engine, Truffault forks, Bosch, adjustable pulley, two belts, Lucas headlight and generator, spare valves, tools, handle-bar watch, etc., fast, powerful, and reliable; any trial; £22.—W. Elce, 47, King Edward Rd., Romford.

1910 Two-speed Humber for sale including Dunlop studded back tyre, Brooks anti-vibratory seat, Autoclipse lamp and generator, Serpentine horn, exhaust whistle, Veeder, and numerous spares; this machine has run about 300 miles, and given great satisfaction, is in first-rate condition, and only being sold as owner is going abroad; price £42 10s. cash.—Apply to A.F.K., c/o Service Co., Holborn, London.

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

3½h.p. Rex, 1909, not been driven 12 miles, complete.—Vosper, Sherborne.

QUADRANT, 3½h.p., good order; cheap, £15.—Victor Pettingill, Shaftesbury, Dorset.

BAT-J.A.P., 4h.p., new January this year, perfect condition; £39.—Hicks, Tregarne Terrace, St. Austell.

6h.p. Ariel, J.A.P. engine, in good running order; £25, or offers; must sell.—22, Forester Av., Bath.

TRIUMPH and Motosacoche, 1910 models in stock; cash, exchange, deferred payments.—Dao Guy, Weymouth.

4h.p. Roc, free engine and two-speed gear, magneto, new Palmer tyres, spring forks; £27 10s., or offers; trial run, or push cycle and cash.—Western, Uffculme, Devon.

1909 Motosacoche, 1¾h.p., magneto model, with Druid spring forks, good running order, not done 700 miles, headlight, generator, two spare belts, fasteners, inner tubes, horn, stand, carrier, etc.; £22.—J.E.M., Roby Hall, Torquay.

MOTOR BICYCLES FOR SALE.

TRIUMPH. 1909, perfect condition, enamelling and plating as new, very little used; £38; new Triumph in stock.—Kimber, Albert Rd., Devonport.

1910 Quadrant, 3½h.p., little used, guaranteed perfect; will ride 150 miles to intending purchaser —P. Thorne, Brunswick, Tiverton, Devon.

SECTION X.

Scotland.

1908 and 1909 Triumphs, in splendid order; £30 and £33.—James H. Scott, Melrose.

3½h.p. N.S.U., magneto, footrests, spring forks; £16, sacrifice.—Scobbie, 59, Mollinsburn St., Springburn.

BEFORE Deciding on your 1910 mount call and inspect the N.S.U., Premier, Bradbury, L.M.C., and Royal Enfield.—Scottish Motor Agency, 167, Morrison St., Edinburgh.

F.N., 1910, two-speed, lightweight; immediate delivery from stock; catalogues post free.—Rossleigh, Ltd., 32, Shandwick Place, Edinburgh.

TRIUMPHS, 1910 standard, or free engine models; immediate delivery from stock; catalogues post free.—Rossleigh, Ltd., 32 Shandwick Place, Edinburgh.

TRIUMPH, 1907, new cylinder, piston, and bearings, adjustable pulley, studded tyres, in very good condition, lamp, horn, tools absolutely reliable; £23.—Ross, 63, Church St., Inverness.

SCOTLAND'S Largest Motor Cycle Firm.—Rex, V.S., Lathan, Moto-Reve, Phelon and Moore, Zenith, Douglas, Roc, Griffon; we stock all these, and can supply any other make.—Alexander's Motor Exchange, Lothian Rd., Edinburgh.

TRICARS FOR SALE.

8h.p. De Dion open frame, 760 by 85 tyres; £42.—Ivy Cottage, Kemsing, Sevenoaks.

6h.p. Humber coach-built, wheel steering, car control; £31—31, Landor Rd., Stockwell.

PHELON and Moore, splendid condition, just overhauled; a bargain.—Heaton, Liversedge.

TRICAR, 6-8h.p. Antoine twin, very fast; bargain, £20.—Taylor, 112, New King's Rd., Fulham.

3½h.p. Chater-Lea, open frame engine, tyres, belt, new £18 10s.—59, Barking Rd., Canning Town.

9h.p. Riley Tricar, re-painted and overhauled, splendid machine.—W., Elms House, Hammersmith.

TRICAR, 4h.p., wheel steering, two-speed, free, clutch, open frame; £16.—Moto, Ham, Old Windsor.

9h.p. Riley Tricar, three and reverse, perfect order; £37 10s.—Baker, Waldegrave Rd., Teddington.

3h.p. Fafnir Tricar, wants painting, splendid running order; £10.—W. Chambers, 93, Brook St., Stepney.

QUADRANT Carette, late type; 20 guineas, or exchange two-speed twin cycle.—Frisby's, Wells, Som.

4h.p. Antoine Tricar, good going order; trial; £10 10s.—5, Bonheur Rd., Bedford Park.—948 Chiswick.

3½h.p. Rex Tricar, French grey, footboards, in good running order; £10.—785, High Rd., Leytonstone.

9h.p. Riley, three speeds and reverse, car tyres, in fine condition; any trial; £50.—785, High Rd., Leytonstone.

TRICAR Frame (closed), complete with 26in. wheels, tank, basket seat, etc.; £4.—785, High Rd., Leytonstone.

3½h.p. Raleighette, w.c., two speeds, Renolds chains, fine condition; £25.—68, Wellington Rd. North, Stockport.

5h.p. Humber, coach-built, two speeds, car tyre on back in good running order; £30.—668, High Rd., Leytonstone.

4½h.p. Tricar, water-cooled, chain, two speeds, wheel, coach-built, perfect; trial.—59, Turnpike Lane, Hornsey.

TRICAR, 3½h.p., nearly new, low built, guaranteed perfect; £20; photo.—1, Frome Rd., Westbury Av., Wood Green.

5h.p. Twin Peugeot Tricar, fast, saving on petrol, and perfect condition; price £20.—Butler, 14a, Kilburn Sq., N.W.

5h.p. Rex Litette, water-cooled, two speeds, magneto, splendid condition; £25 cash.—The Grove, Robertsbridge, Sussex.

HALIFAX.—5½h.p. Quadrant Carette, two speeds, open frame, grand condition; £19 19s.—Motor Exchange, Westgate, Halifax.

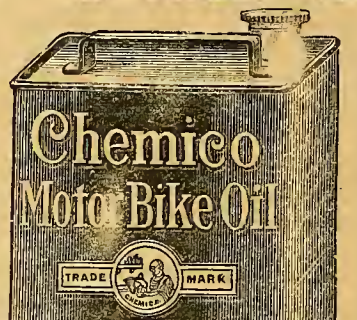
£14.—3½h.p. Singer, coach-built, magneto, has been thoroughly overhauled; offers; owner buying car.—Strong, jun., Acton, W.

5h.p. Riley.—Anyone wanting a good reliable machine, all ready for the road, should apply to H. Ball 51 Westgate, Peterborough.

10-12h.p. Lagonda Tricar, three speeds, spares, perfect order; £35.—Lagonda Motor Works, Maze, Hillsborough, Down, Ireland.

QUADRANT Carette 6h.p., two engines, two speeds, open frame, in splendid condition; £20.—9, Coleman St., New North Rd., N.E.

3½-4½h.p. Ariel Tricar, two speeds, Bowden lift, footboards, good condition; £18, part exchange.—136, Lambeth Walk, London.



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MOTOR BIKE OIL.

You know the advantages of a sweetly running engine, friction is not getting in its deadly work—this oil keeps friction and heat at bay.

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THE

RELIANCE MOTOR CYCLE REPAIR OUTFIT

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The COUNTY CHEMICAL Co., Ltd,

BIRMINGHAM.

London: 43, Great Eastern Street.
Manchester: 235, Deansgate.
Glasgow: 128, Renfield Street.
Dublin: Golden Lane.

TRICARS FOR SALE.

10-12h.p. Lagonda three speeds, late model, coach built, three lamps; £32 10s.; genuine bargain.—White, Lammas Villa, Staines.

6-7h.p. Litette, perfect, new Michelins throughout, complete with all accessories; price £40.—"A.," 3, Leaside Av., Muswell Hill, N.

4¼h.p. Phœnix Trimo, sprung, new gears, Amac, bearings, sprockets as new; worth £30, sell £20; want car.—Studio, 61, Denmark Hill, Camberwell.

4½h.p. Riley Tricar, two speeds free engine, all in new condition; exchange motor cycle and cash, or sell £24.—Sear, Confectioners, Chingford, Essex.

3½h.p. Coventry Eagle, Buchet engine, coach-built, front seat, excellent condition, thoroughly reliable; trial; 12 guineas.—The Lilacs, Butts, Coventry.

4h.p. Rover, two speeds, free, chain drive, coach-built, wheel steering, spares, excellent condition; £25 or offer.—Rabson, Market Parade, Balham, S.W.

MINERVA Tricar, 3½h.p., Chater-Lea frame, good going order; reasonable offer accepted.—W. J. Roberts, 128, Fielding Rd., Bedford Park, Chiswick.

REXETTE, 5½h.p., two speeds, coach-built, wheel steering, smart looking car, water-cooled, Renolds chain £20.—Funnell, Yew Villa, Granville Rd., Walthamstow.

WOLF Tricar, w.c., three-speed, handle starting, coach-built, handle-bar control, guaranteed condition, Clincher tyres; £20.—Chilton, High St., Watford.

LIGHT Tricar, twin Rex Triette, Roc clutch, two speeds Bosch magneto, new last July, perfect, and complete; £36; any trial.—22, Victoria Terrace, Leamington.

3½h.p., Brown engine, Amac, Chater frame, perfect, running order, lately overhauled, good tyres, accessories; for quick sale, £10 10s.—Burch, 57, Wallet Rd., New Cross.

4½h.p. Humber Tricar, water-cooled, two-speed, coach built front, splendid climber, sound condition, wind screen, apron, tools; £25.—Master, Gamesley Hospital, Glossop, Manchester.

4½h.p. Humber Tricar, coach-built forecarriage, water cooled, two speeds, handle starting, 9½in. clutch, first-class order; £20.—Apply, West, Leeds Motor Co., Wellington Rd., Leeds.

AFTER You've Scanned these announcements, before deciding, write to, or call on, Pullman Bros., London Rd., Norbury, London, for a list of good machines at really marvellously low prices.

6h.p. Twin-cyl. Zenith, two speeds, sprung frame, latest things in every detail, £22 10s.; also 5½h.p. Clement-Garrard, three speeds, water-cooled, £20.—27, Kingsbury Rd., Dalston.

6-8h.p. Riley Tricar, twin-cyl., three speeds and reverse, car tyres, light blue body, red leather lined back, aluminium bucket seat, very fast, fine hill-climber, price £40.—Benzie, Cowes.

4h.p. Singer Tricar, vertical engine, Bosch magneto ignition, belt drive; must sell, £15 10s.; also 3h.p. Phœnix tricar, Minerva, £8 10s.—Murray, 37a, Charles St., Hatton Garden, Holborn.

HUMBER, 4½h.p., water-cooled, two speeds, handle starting, new tyres and chains, footboards, coach front, foot bell; £21, immediate sale.—N.C.P., c/o Lines Garage, Hurst St., Birmingham.

PHŒNIX, 6h.p., twin, two-speed, coach-built, wheel steering, fan-cooled, spares, overhauled; photo, trial; exchange Touring Auto Cycle, 2-seater car, motor bike and cash.—Fisher, Architect, Pontypool.

4h.p. Phœnix Trimo, Bosch magneto, two speeds, free engine, handle starting requires slightly overhauling, climb anything; sacrifice £20, take magneto cycle exchange.—R. Else, Leawood, near Matlock.

LATEST 9h.p. Riley de Luxe, side doors, three speeds reverse practically new condition throughout, only run 1,500 miles, complete with lamps and tools; cost £160, sacrifice £57 10s.—R. Else, Leawood, Matlock.

5h.p. Twin Rex Triette, air-cooled engine, Bosch magneto, two speeds, Roc clutch, 1½ belt, specially built July, 1908, engine new in 1909, cane seat, footboards, etc.; £38, or nearest offer.—G., 33, Meriden St., Coventry.

LAGONDA Tricar, 5½h.p., open frame, free engine, two speeds, chain drive, clutch, Continental car tyres, perfect running order, ready for road; £18; can be seen and tried.—Overstall, Sanatorium, Virginia Water, Surrey.

4½h.p. Riley, water-cooled, and coach-built sidecar, two-speed gear, foot clutch, and brake, starting handle (same as a car), chain drive, nearly new tyres, in splendid condition; 28 guineas.—Conner, 736, Holloway Rd., London.

CHATER-LEA Coach-built 6-8h.p. Advance, twin, water-cooled engine, two speeds, chain drive, raked wheel steering, tyres practically new, car tyre on back wheel, three lamps, tools, spares.—Baker, Beaworthy, Devon.

9h.p. 2-cyl. Singer Tricar, gear box like big car, gears excellent, car running like new, fast and very silent, external condition excellent, tyres splendid, headlights and other accessories; £45.—Mann, Egerton, and Co., Ltd., Norwich.

3½h.p. Ariel, B.B. carburetter, 26 Palmer tyres, adjustable pulley, ¾ belt, in splendid running order, very fast machine, £13 10s.; also Matchless tricar, £2 5s., or would exchange for 2½h.p. and cash.—20a, Lodge Rd., Sutton, Surrey.

In answering these advertisements it is desirable to mention "The Motor Cycle."

TRICARS FOR SALE.

1h.p. Riley Tricar, water-cooled, coach-built front, 2 clutch; £15 15s., or exchange for good low motor cle.—Wilson Doveholes, Buxton.

TRICAR, 4h.p., fan-cooled, coach-built, chain drive, two-speed and tree, Antoine engine, Clincher tyres; 18. or nearest offer.—F. Atkins, 78, Cobden St., icester.

TRICAR, N.S.U., 6h.p., twin, fan-cooled, magneto, two-speed, Phœnix special coach-built forecarriage de footboards, box of tools and spares; £35; seen Sat- days, or appointment.—85, Clyde Rd., Wood Green.

h.p. Excelsior-M.M.C. Tricar, cane forecarriage, Phœnix attachment, lamps, and all accessories to order and condition; ready for road; accept £15; rgain.—Howie, 68, Lansdowne Rd., West Didsbury, anchester.

1h.p. Phœnix Trimo (coach-built), in thorough going 2 order, Osborne four-speed pulley, and free engine ttle belt, new tyres, accumulator ignition, tools, etc.; st sell; accept any reasonable offer.—41, Stansfield l., Brixton, S.W.

TRICAR, 6-8h.p., water-cooled, magneto, pressed steel frame, coach-built, wheel steering, and control, two eeds, clutch, car tyres, all spares, specially built, new ndition; owner bought car; trial; photo; £58.—Tarr, nactery Rd., Sheffield.

IF I Want Cash will sacrifice my new (August, 1909) Rex twin Triette, clutch, and two-speed everything rfect and unscratched, special body, two P.R.S. lamps, O.M. tyres; cost £75 best offer over £50 can have it. No. 4,280, *The Motor Cycle* Offices, Coventry.

QUALITY.—Late 1907 Model Quadrant Carette (tri-car), 6-8h.p., 2 cyls., two speeds, coach-built, open ine, wheel steering, sprung, etc., little used, absolutely new, guaranteed perfect; cost 96 guineas, take £22 s., or motor bike part.—48, Walton Rd., East Molesey.

EXETTE (King of little cars), coach-built, sprung chassis, perfect condition £20 spent last year on provements and overhauling, car tyres, nearly new, antity of spares; £39; exchange popular 3½h.p. motor le.—82, Oakwood Rd., Sparkhill, Birmingham.

1h.p. J.A.P. engine, Phœnix, Chater-Lea, two-speed, 2 chain drive, free engine, handle starting, fan-cooled, ring saddle, studded tyres, spare valves, tube, chains, up, all tools, rainproof cover ready for touring; price 0.—Young, 23, Priory Grove, South Lambeth, S.W.

FAST 5h.p. Tricar, water-cooled engine, two speeds, wheel steering, engine recently refinished, body re-inted motor grey, reupholstered blue, new R.O.M. e first-rate condition throughout; £35; trial or other rticulars.—Richards, 9, Fairview Rd., Cheltenham.

6h.p. Lagonda Tricar, three speeds, coach-built body, special bucket seat for driver, handle-bar control 0 by 80 tyres, spare engine parts and tubes, tools, and ips; seen by appointment, and trial given; price £50 .—W. Randle, Woodthorpe House, Ashford, Middlesex

h.p. Kerry-Abingdon, twin engine, perfect, chain drive, foolproof two-speed and clutch, handle starting, chromised ignition, handle-bar control, climbs Birdlip h three passengers, new Palmer cord car tyre back, ocher Dreadnoughts front; £30; consider exchange 3½h.p. bike.—Edge, bootmaker, Marple.

TRIETTE, 7-6h.p., water-cooled, magneto, two speeds and clutch Palmer cord tyres, cost £80 in Decem- 1908, has never broken down, very fast, silent, and y to start, coachwork unscratched, Stewart car speed- ter, less mirror headlight, all spares, and a new re tyre; any trial or expert examination; £50, or e offer.—Lieut. Prickett, Whale Island, Portsmouth.

3½h.p. Water-cooled Lagonda Tricar, coach-built body bucket seat for driver, h.b. control, back tyre helin non-skid, 710 by 90, sides, Continental non-skid, by 65, not done 3,000 miles, spare cover and tubes, ocket wheels, some new and other spare parts, lamps, accumulators, etc., all in going order; £35, or nearest r.—J. Sharman, Woodcot, Woodthorpe Rd., Ashford, Middlesex.

SIDECARS AND FORECARS.

ILLFORD Castor, as new; £7.—Motor, Park Lodge, Brackley.

ORECAR, with fine coach-built body, less tyres; 45s. a bargain.—92, Myrtle Rd., Leicester.

ILLS-FULFORD Castor Wheel Sidecar, as new perfect; £6 6s.—Truman, Sidcup, Kent.

ONTGOMERY, flexible, cane body, good condition 2½ tyre; £5.—Stacey Wood, Wivenhoe, Essex.

EARLY new rigid sidecar, 26in. wheel, perfect; £3 5s.—King 6, Orris Mews, Beadon Rd., Hammersmith.

DECAR, good condition, fit any frame; lowest £3 15s.—Markham, 91, St. James Rd., Liverpool Rd., Isldon.

DECAR, new, Moseley tyre, tube, specially upholstered green; nearest offer £4.—G., 37, St. Quintin , London, W.

DECARS, £4 17s.; baskets, springs, fittings; trade supplied.—Middleton and Co., Watson St., Newington Green, London, N.

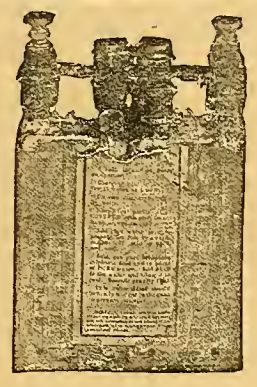
OACH-BUILT Sidecar, upholstered green, 26 by 2 tyre, nearly new, only used once; bargain, £3 17s. -169, Newfoundland Rd., Bristol.

ORECARRIAGE, cane seat, well sprung, 24in. wheels and tyres, good condition; £3 3s.—R. wley, 339, Strobnall St., Burton-on-Trent.

REPAIRS

TO ALL MAKES OF

ACCUMULATORS



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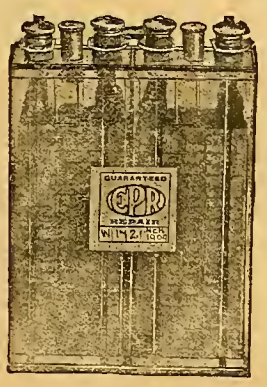
WE ARE SPECIALISTS IN REPAIR WORK, AND SPECIALLY CATER FOR THIS CLASS OF TRADE. NO BATTERY NEED BE THROWN AWAY AS USELESS OR BEYOND REPAIR.

JUST SEND IT ALONG TO US. WE WILL QUOTE YOU BY RETURN, OR MAKE YOU AN ALLOWANCE IN EXCHANGE FOR A NEW CELL.



CELL WHEN REPAIRED.

THE ABOVE ARE FROM ACTUAL PHOTOS, BEFORE AND AFTER REPAIRS OF AN ACCUMULATOR SENT UP BY A CLIENT, AND ARE NOT SPECIALLY FAKED UP FOR ADVERTISING.

Our new List, containing 40 pages, sent post free on request.

Dept. A.R., RICHFORD & CO. (Accumulator Specialists), 153, Fleet Street, LONDON, E.C.

SIDECARS AND FORECARS.

FORECAR Attachment, with side stays, band brakes, mudguards nearly new, also Osborne free engine, four-speed.—Reeve, Windsor Rd., King's Lynn.

HALIFAX.—£5 17s. 6d.. De Luxe sidecars, special detachable fittings, no second adjustment, art cane or wicker body.—Motor Exchange, Westgate, Halifax.

FORECAR long side stays, footboards, nearly new tyres, fitted with band brakes to both wheels, perfect; £4 10s.—106, Pritchard's Rd., Hackney, London N.E.

FORECAR Attachment, coach-built seat, detachable, wheels 26 by 2½, Dunlop tyres, perfect condition, steering as car; wanted, No. 6 Chater frame or similar make, complete, 26in. wheels, tyres tank prim forks, etc., suit 3½h.p. vertical.—Cradock, St. Austell.

SIDECARS.—Our £5 10s. are built from Chater-Lea fittings, including hub; our £4 15s. car is built from Chater-Lea lugs; all are complete with side strain and mudguards, including second-hands from £3 15s.; fitted while you wait free.—C. A. Edgar, 123, Holloway Rd., London.

BEFORE it is too late order your Oakleigh sidecar now; £5. Remember we are the actual inventors and originators of the sidecar, and know how a sidecar should be built. We use only genuine Chater-Lea fittings throughout. Not a part here and there. Delivery from stock.—Oakleigh Sidecars, Ltd., 65a, Rosendale Rd. West Dulwich.

PILOT Sidecars, by test the best; our latest model £4 17s. 6d., complete; is a really high-class production, and must not be confounded with the sidecars offered elsewhere; our determination to make the best is deliberate; assemblers compete in price only; approval; deposit; gradual payments.—Manufactnrers, Pilot Cycle Co., Soho Rd., Birmingham.

FOLDING Sidecars, will go through any doorway where motor cycle will go without detaching, is absolutely rigid, more comfortable and convenient than any existing sidecar, grade A, £7 7s.; grade B, £5 7s.; your old sidecar converted into folding for £1 17s. 6d.; ordinary detachable sidecar, £4 5s.—Sole Manufacturers the New Mona Cycle and Motor Co., Mona Wks., Barrett's Grove, Stoke Newington, Lond[illegible] rear 166 and 168, High St., Stoke Newington, N. (see under repairers.)

SIDECAR COMBINATIONS.

3½h.p. Quadrant (magneto), with forecar; £16 10s., or separate.—79, King George St., Greenwich.

4h.p. Excelsior, strong, with sidecar, perfect running order; nearest offer to £16.—6, Herrick Rd., Highbury.

7-9h.p. Peugeot and rigid sidecar, No. 6 Chater frame, very low, reliable; lot 23 guineas.—29, East St., Barking.

BARGAIN.—5-6h.p. Twin Peugeot, Chater, and sidecar; 27 guineas.—Particulars, 80, Cromwell Rd., Luton, Beds.

ROO, 4h.p., and sidecar, free engine, magneto, adjustable pulley, good condition; £25; seen any time.—177, Roman Rd., Bow.

5h.p. Twin Kerry, three speed, and Montgomery flexible sidecar; bargain, £24; trial here.—Barber, Hailsham Rd., Polegate, Sussex.

T.A.C. and Sidecar (as illustrated page 233 last week's "Motor Cycle"), new, and unused.—Box 4,240, *The Motor Cycle* Offices, Coventry.

4½h.p. N.S.U. and sidecar, clutch, and two-speed gear, perfect condition; any reasonable trial; £22.—Hopkins, Woodleigh Rd., Ledbury.

BAT, 4h.p., spring frame, and sidecar, free engine clutch, studded tyres, in sound condition.—Ayden, 17, Blackstock Rd., Finsbury Park, N.

ROC, 5-6h.p., 1909 twin magneto, B. and B., Whittle handle-bar control, Mills-Fulford sidecar; £25.—Grove, Pond Wood, Wokingham, Berks.

3½h.p. Humber, sidecar detachable, splendid working order, new covers; £12 10s., or offer complete.—The Schools, Kilburn Lane, Kensal Green.

1908 Twin Rex and Sidecar unscratched, guaranteed not run 1,000 miles, Palmer cords, every accessory; open to offers.—"A.," Leaside Av., Muswell Hill.

REX Twin-cyl. 5h.p. Motor Cycle, and Mills and Fulford sidecar, cane chair, castor wheel; £16 16s.—Can be seen and tried any time at Dean's Garage, Carnforth.

5h.p. Humber and Fulford castor sidecar, two-speed gear, handle-bar control, in splendid condition; £35; exchange considered part.—Vernon Whitehead, Abingdon.

1909 Triumph, perfect condition, Rom back tyre, lamp, horn, spares; also Monarch very flexible sidecar; £40 the lot.—Pickford, 19, Pavilion Rd., Knightsbridge, London.

3h.p. Motor Cycle, Brown engine, Amac carburetter, h.b. control, Palmer cord tyres (one new), perfect condition with sidecar; £20 or would sell separately.—M.C., 1, Titchfield Rd., Enfield Lock.

7-9h.p. Pengeot, Chater-Lea frame, Mabon clutch Amac carburetter, Chater-Lea sidecar, nearly new, not done 500 miles; seen by appointment; £40.—Eddington, 100, Mildmay Rd., Chelmsford.

TRIUMPH, 3½h.p., 1907-8, h.b. control, grand engine, little used, Mabon clutch, new Clincher studded tyres, new belt, Mills-Fulford castor wheel sidecar combination; £36.—Seen at 9, Linden Arcade, High Rd., Chiswick.

SIDECAR COMBINATIONS.

1909 5h.p. Rex de Luxe, and sidecar, steel studded tyres, Autoclipse, Watawata belt, extra front and tail light, spares, hardly used; owner buying car; perfect; bargain, £43 10s.—J. Brooks, The Common, Eccleshield, Sheffield.

7h.p. Waverley-J.A.P., and sidecar, free engine, variable pulley, handle starting, wind screen, patent 9 foot silencer, engine noiseless, luggage basket, quantity spares all new last July, perfect condition; £50.—C. Rigby, 111, Cotton Exchange, Liverpool.

6h.p. Twin Antoine, Chater-Lea, two-speed, free engine new 2½in. Palmer cord tyres, rubber footboards Amac carburetter, Davis-n tank with gauges, long, low position, rigid sidecar, lamps, horn; bargain, £35.—Williams, El-Nido, Priest Hill, Caversham-on-Thames.

REX Twin, two-speed, etc., late 1909, not travelled 1,000 miles, perfect condition, over £10 (present low valuation) of accessories, with instantaneously attachable fleet-e Montgomery sidecar no faults; cash offers considered for this desirable speedy touring combination, together or separate. Kingston-on-Thames). —Box L1,114, *The Motor Cycle* Offices, 20, Tudor St., E.C.

MOTOR TRICYCLES AND RUNABOUTS.

MOTOR Tricycle, genuine De Dion, large seat, and very comfortable. 1½h.p., will go up most hills without assistance; £6.—Apply, 6, Brownswood Park, South Hornsey.

TANDEMS.

PHŒNIX Motor Ladyback Tandem, excellent condition, low built; lowest £12 10s., with accessories. —J.O., 261, Rotherhithe New Rd., Rotherhithe.

QUADCARS.

PHŒNIX Quadcar, twin-cyl., Fafnir engine, dual ignition, detachable front seat, tools, spares, recently overhauled; £37 10s.—G. H. Wait and Co., Leicester.

TRAILERS.

STRONG Motor Trailer; £1, or near offer.—2, Moyce St., Kennington.

CARS FOR SALE.

PALMER.—8-11h.p. Panhard waggonette, seats 8, 3-cyl. Centaure, Krebs, solid tyres, canopy; £45.

PALMER.—10-12h.p. Daimler lorry van, 2-cyl., solids, carry over 30 cwt.; £50.

PALMER.—8h.p. Jackson, racing type, genuine De Dion engine, pressed steel frame, absolutely perfect; £75.

PALMER.—16-24h.p. De Dietrich, tonneau, seats eight persons, splendid reliable car, beautiful condition; £55.

PALMER.—9h.p. nearly new 2-seater, best French make raked steering, wheel control, perfect; £90.

PALMER.—40-50h.p. De Dietrich, side entrance car latest model, fitted hood, screen; £325.

PALMER.—16-24h.p. 1907 F.I.A.T., side entrance hood, screen, h.t. magneto, beautiful touring car; £185.

PALMER.—16-20h.p. 1907 Beeston Humber, side entrance, dual ignition, gate change, condition like new; £175.

PALMER.—7-11h.p. Panhard, tonneau, hood, screen 2-cyl., Centaure, nice condition, very reliable; bargain, £45.

PALMER.—Humber chassis, complete, ready receive engine, £25; M.M.C. chassis, complete, ready receive engine, £15.

PALMER.—9h.p. Jackson, 2-seater, bucket body, general condition like new; £85.

PALMER.—9h.p. taxicab, latest style, landaulet body seating four inside, very smart; £150.

PALMER.—8h.p. Buchet chassis, late type, long stroke, fast running engine; £75.

PALMER.—16-24h.p. De Dietrich Chassis, late type M.O.V., pressed steel frame; bargain, £85.

PALMER.—In stock at Tooting, one monoplane, 30ft span, ready to receive engine; £75.

PALMER.—12-16h.p. Mutel, chassis, 4-cyl., cardan drive, late type, like new throughout; £60.

PALMER.—16-20h.p., Anglian, side entrance limousine all Aster fittings, and engine, silent and perfect, £135.

PALMER.—8-10h.p. Humber, light side entrance, side and head lamps, Stepney, like new car; £55.

PALMER.—14-16h.p. 1910 Darracq. I make the largest possible allowance for old car; £225.

PALMER.—24h.p. F.I.A.T., Burlington body, late type car, best grade car, perfect; £175.

PALMER.—All above seen at L. N. Palmer's, 9a, Trevelyan Rd., Tooting. Garage one minute Merton Rd. tram terminus, Tooting. 'Phone, 208, Streatham. Photos, details. Easy terms. Exchanges.

Easter by the Sea.

Call and see me. I shall be open Good Friday and Easter Monday. How do these suit you?—

MAGNETO MACHINES READY for the ROAD.

TRIUMPHS—1909, condition first-class, studded tyres, and new leather belt, not done 500 miles; **£39.**

1908, good engine, magneto flap, cut-out, complete kit of tools, etc.; **£32.**

1908, free engine, fine sidecar machine, beautiful condition, little used; **£38.**

HUMBER—3½ h.p., exhaust under engine, condition as new, Druid spring forks, cut-out, large flap, magneto away from dirt; **£37 10s.**

PREMIER—New 1910 3¾ h.p. Twin; listed by the makers £52 10s.; my price **£45.**

REXES—3½ h.p., 1908, condition first-class, tyres good, padded saddle; selling at **£28 10s.**

5 h.p. Twin, free engine, two-speed gear, condition first-class, age about 1908, engine been lately overhauled, tyres good; **£35.**

5 h.p., magneto, condition good, free engine, belt and tyres first-class, Cantilever seat, spring forks; **£32.**

5 h.p. Twin, free engine, condition very nice indeed, Cantilever seat, spring forks, tyres and tubes good, ready for road; **£30.**

N.S.U.—Carrier, toolbag, good condition, leather steel-studded tyres, spring forks; **£25.**

MOTO-REVE—1909, slightly shop-soiled, perfect in every way, direct from makers this year, complete kit of tools; listed 39 guineas; my price **£27.**

F.N.—4½ h.p., four-cylinder, condition as new, very low seat, ready for road, good tyres; £[illegible]

2¾ h.p., good useful machine, spring forks, ready for road; **£16 10s.**

MOTOSACOCHE—1909, new Septen ber last, condition first-class, spring forks, spring handlebars, extra air inlet, strong cranks, extra wide pedals, and many other extras; altogether costing £40; my price **£26.**

ARNO—3 h.p., condition as new, slightly shop-soiled; listed at £37 10s.; my price £27 10s.

CLYDE—2¾ h.p., spring forks, good useful machine, tyres and belt good; **£18 10s.**

PEUGEOT—3½ h.p., good useful machine for hard work, tyres and belt good; **£19 10s.**

ACCUMULATOR MACHINES IN RUNNING ORDER.

TRIUMPHS—Two accumulator Triumphs, good condition tubes and tyres, engines been overhauled; **£17** and **£19.**

QUADRANT—3½ h.p., studded tyres, decent condition, ready for the road; **£12 10s.**

ALCYON—5 h.p. Twin, H.B. control, N.S.U. variable pulley, tyres in good condition; **£18 10s.**

KERRY—2¾ h.p., low seat, tyres and tubes decent condition; **£12.**

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7-9h.p. Star, 4-seater, three speeds and reverse; Below.

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ECLIPSE.—16h.p. Chenard-Walker, side entrance ignitions, hood, splendid condition; £115.

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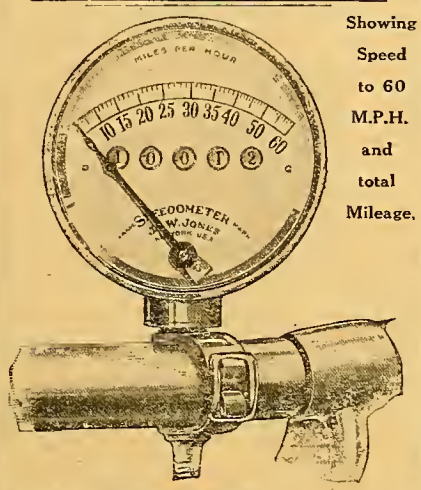

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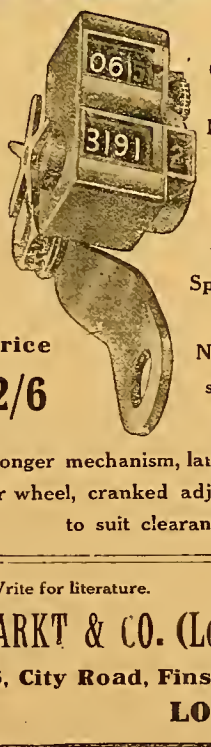

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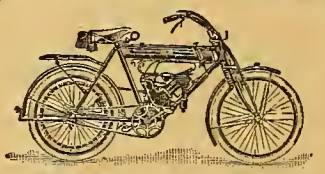

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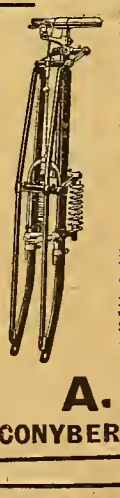

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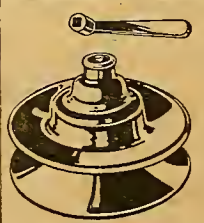

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FIELD Glasses and Case, for spring forks, or anythi motorcycle wanted, ⅞ belt, for cash.—Red Lion, Lo ton.

EXCHANGE Humber Motor and cash for Triumph, good magneto machine.—Tapscott, King St., Tiv ton.

EXCHANGE Brand New 2¾h.p. 1910 J.A.P., ridden, and cash for small car.—A. Moyse, Kessi land.

WILL Give 2¾h.p. Pebok Motor Cycle, free engi for sidecar and cash.—785, High Rd., Leyt stone.

WILL Give gent's cycle, just enamelled and plat and cash for sidecar.—785, High Rd., Leyt stone.

EXCHANGE gent's B.S.A. cycle, as new, and cash, 1 twin Douglas.—Particulars, A. Matthias, 76, B tersea Rise, S.W.

SMART 6h.p. De Dion Engined 2-seater, three spee reverse, for magneto bike and cash.—20, Pott newton Lane, Leeds.

10 Guinea Centaur Cycle, and new vertical steam e gine, value £6, for motor cycle.—Webb, Hor Cross, Greenhithe.

EXCHANGE small De Dion car (2-seater), good ord for 3½h.p. motor cycle (magneto), or £20 cash. Guzeley, Penny Stratford.

EXCHANGE for 1909 Triumph motor cycle, M.M. car (see Car advertisement).—Turvey and Co., T Motor House, Sunderland.

WANTED, Triumph, 1909, complete; exchange Goe binoculars, g ld repeater, and cash.—Mdc, 4 Chichester St., Belfast.

WANTED, motor cycle; exchange noted winning Kin Charles toy spaniel.—Box No. 4,287, *The Mot Cycle* Offices, Coventry.

3h.p. Gas Engine, dynamo, lamps, and shafting, f 4 lightweight motor cycle, or sell cheap.—Burton, Lewis Lane, Cirencester.

EXCHANGE 7h.p. Garrard tricar, three speeds, wor drive, wheel steering, for bike and sidecar.—Walke 5, Cross Francis St., Leeds.

NO. 6 Chater Frame, tank; wanted, 5½h.p. J.A.P. e gine, Roc, or Rex gear, cash adjustment, or sel —17, Tamworth Park, Mitcham.

GENT'S £10 10s. Centaur Cycle and gent's £6 15 Rudge cycle, both practically new, for good twi engine.—9, Beeton Rd., Sheffield.

RUDGE-WHITWORTH Lady-back Tandem, practi cally new, unscratched; exchange for good moto cycle.—E. Bateman, South Shields.

LIVERPOOL.—Motor Cycles exchanged for lates models, or sold on commission.—White's City D pot, 22, Brooks Alley. Royal 3782.

2¾h.p. Minerva Carburetter and Silencer, in good con dition, for 5h.p. twin, cash adjustment. — Armitage, Florence Av., Ashley Rd., Leeds.

THE MOTOR CYCLE

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The Trade and the Trials.

IN the last two issues we have pointed out that some members of the industry have under consideration the curtailment of trials, and we have already given our views as to why it is inadvisable to curtail these competitions. While this subject is under consideration it may be interesting to compare the numbers of private owners and trade riders in last year's A.C.U. events, such as the Six Days' and Quarterly Trials. Roughly speaking, the private owners represented about thirty per cent. of the entries, which does not by any means account for a tithe of the expert private owners in the country. If, instead of thirty per cent. private owners and seventy per cent. trade riders, we could see the figures transposed, we should be very much more satisfied, and the results of the trials would be far more interesting to the general bulk of motor cyclists. Prospective purchasers want to know how the machines they intend to buy will perform in the hands of average riders, and, although some of the private owners may be nearly as expert as the trade riders, few have the facilities for gaining that thorough knowledge of their machines that the trade rider has in his daily occupation. If, instead of attempting to curtail the trials, the members of the industry would come to some amicable arrangement to subscribe a certain amount to assist the A.C.U. in organising its events, then the A.C.U. would be able to secure an entry composed wholly, or nearly so, of private owners at small nominal entrance fees. At present the trade makes the trials possible by providing the sinews of war in the form of expensive entry fees; it might just as well pay the piper in another way, leaving the competitors to be recruited from the amateur ranks.

Where Improvement is Needed.

CONTINUING the subject, we should like to remind manufacturers (who apparently have the making or marring of the trials in their hands) that reputations have been partly built up or lost in road trials, and that as these competitions have been of service during the last few years, they are equally likely to be advantageous in the future. No machine is so good or reliable that it cannot be improved, and we particularly require improvements in the direction of springing. Motor cycles have now become so speedy that a rough road necessitates better springing both fore and aft. There is no hiding the fact that thousands are waiting for perfection in this direction. There are a few well sprung machines on the market, but the majority of makers have not, up to the present, given that attention to springing which the matter deserves. When the tyres are pumped board hard, as they have to be to support a fairly heavy machine and rider, motor bicycling on a rough road is not so comfortable as it might be. For this reason alone, disregarding other desirable improvements, trials should be continued.

Speed and Multiplicity of Explosions.

ON the above subject we had something to say a week or two ago, but we may be pardoned for returning to the topic in view of an experience we had during the Easter holidays. It may seem puny to endeavour to persuade the police that, because a motor bicycle emits a continuity of explosions, it is not necessarily travelling fast, but we had abundant proof during the holidays that policemen as a whole are easily misled by the sound of the exhaust, and they have become so accustomed to the

single-cylinder "pop, pop, pop," that they are altogether baffled when a machine such as a two-stroke twin-cylinder comes along. We were riding one of these machines at Easter, and on two occasions a policeman held up his hand as a signal for the rider to slow down, and we are confident that the warning was prompted merely by the continuous buzz of the engine, and not by the speed of the bicycle. The surprised looks of policemen in other districts were sufficient to prove to us that they were in a perplexed frame of mind, and hesitating whether to hold up their hands or not. The rider's situation was as amusing as it was serious, for a constable might easily have stopped a rider and unjustly reported him for furious or reckless riding, or however he liked to construe it. In course of time, no doubt, the police will be educated in this matter, but we would again urge motor cyclists to lose no opportunity of explaining that the noise emitted by a motor bicycle has no direct bearing on its speed.

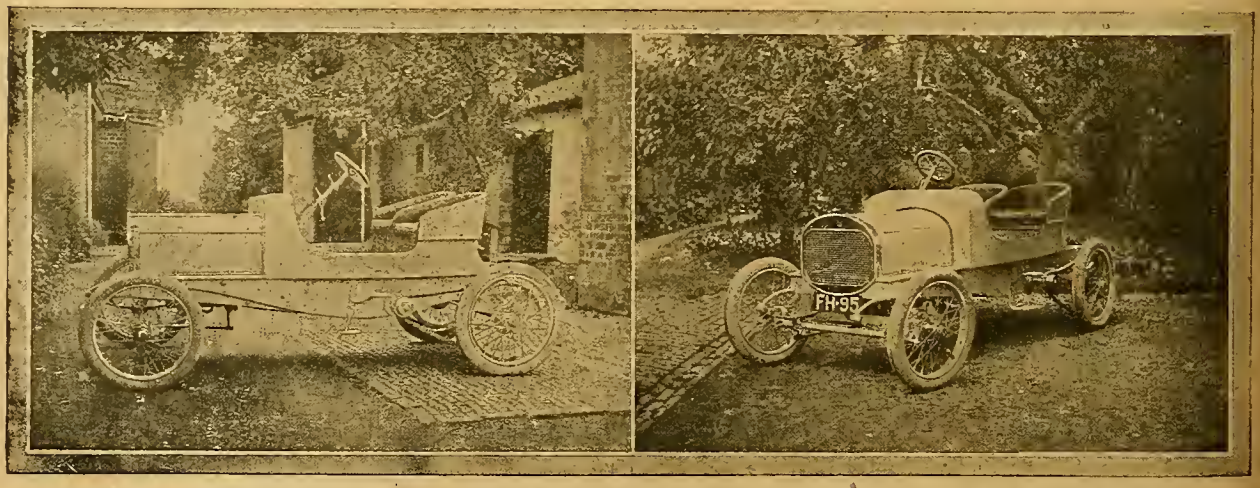
A LIGHT FOUR-WHEELED RUNABOUT.

FROM time to time I have noticed queries in *The Motor Cycle* respecting a light runabout built on motor cycle lines. It may therefore be of interest to readers to know that I have just finished building a small motor vehicle on these lines for my own use. As the illustrations show, it is a two-seater with a 7ft. wheelbase and 4ft. track. In appearance it is a miniature car with bonnet and radiator complete. The latter is, of course, make believe, as the engine is air-cooled. It is, in fact, the well-known four-cylinder F.N. of 5-6 h.p. It is a very flexible engine, and runs smoothly without vibration. It is set in the frame crosswise, so as to give an open drive to the counter-shaft. It also enables all the four cylinders to face the direction of travel. On the crankshaft I have fitted a flywheel, a twenty teeth chain sprocket, and a Mabon friction clutch. The latter is operated by Bowden wire from the steering column, and will pick up the drive smoothly and without difficulty.

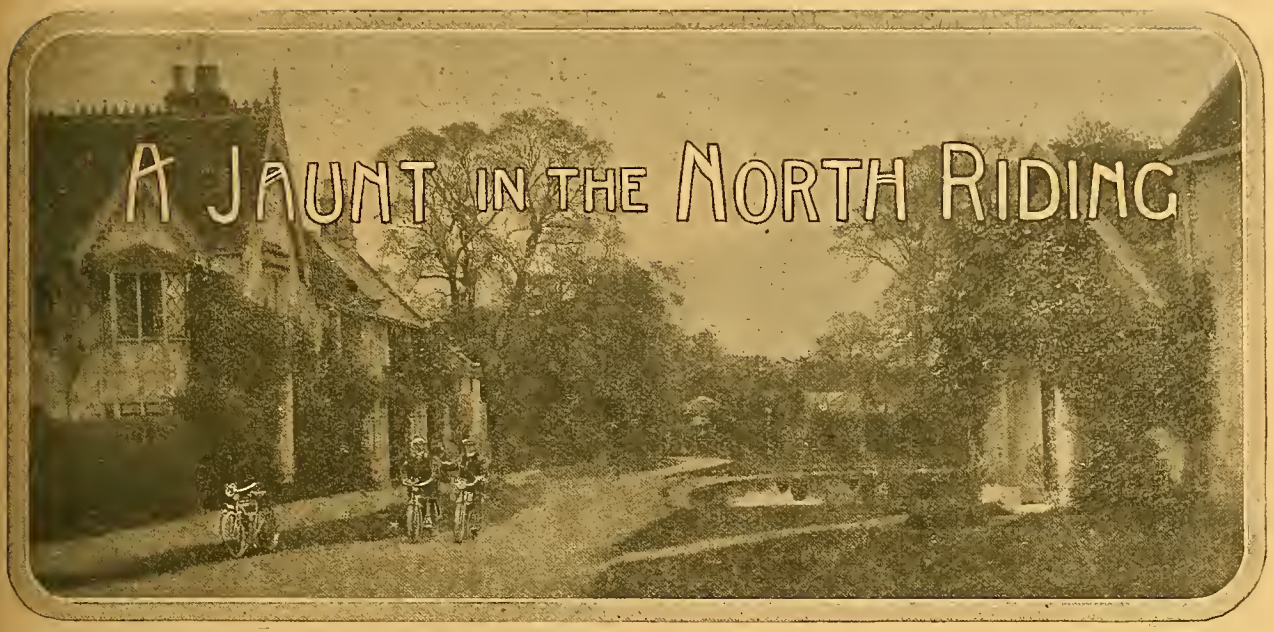
From the engine the drive is by Renold chain to a thirty teeth sprocket wheel keyed solid on the counter-shaft. This counter-shaft runs on ball bearings. Near its centre is a brake drum and band operated by the foot. On each end of the counter-shaft is a Lloyd's Auto-varia pulley. These pulleys drive the two rear road wheels which are fitted with V belt rims. There is no differential. I have not found one necessary, as with this drive the car will take any curve without trouble or detriment to the steering. Of course, one of the belts overruns the other, and the L.M.C. pulleys lend themselves admirably to this requirement.

On a straight road these pulleys act in unison according to the gradient, working at full diameter on the level and automatically reducing the gear ratio on a hill. It is a pleasure to lean over the side of the car and see the way they open and shut on an undulating stretch of road. The rear driving belts are 1in. Whittles. As the total weight of the car is so light, a reverse is not necessary. The machine is geared 6 to 1 normally when the L.M.C. pulleys are working at full diameter. When the machine mounts a gradient these pulleys allow the belts to drop lower in their grooves, and the gear drops to 8 to 1. Further than this I cannot at present reduce the gear, but I am just about to fit an epicyclic gear on the counter-shaft which will give me a further reduction for use in extreme cases. Most of the fittings used in this car are of Chater-Lea make. Tyres are Dunlops 700 × 80 mm. The frame is of specially selected ash, every part throughout is light but strong, and I have driven at all speeds up to 30 m.p.h.

In conclusion, I would strongly recommend all who contemplate building a machine of this type to drive both rear wheels. The strain on the frame is thereby equalised, and the work divided between two belts. I notice a correspondent "W.G.A." proposes to build a runabout and to make the front drive (from engine) a belt one. He will find this very hard work for a belt, and the mechanism he will have to employ for moving the sliding flanges of his pulleys will have to be very strong indeed. He will find a chain more satisfactory for his front drive. Variable pulleys answer in the case of any rear drive, as I have proved by those on my machine. J. J. B.



A smart looking belt-driven runabout built on motor cycle lines, and fitted with an air-cooled engine. (See accompanying descriptive article.)



A JAUNT IN THE NORTH RIDING

HOW many motor cyclists—including Yorkshiremen—are acquainted with the beauties of the scenery in the North Riding? It is undoubtedly neglected by the average touring motor cyclist. Last summer three enthusiastic riders—the writer one of them—decided to spend a week-end exploring the beauties of the district, which had been described to them in eulogistic terms by several of their touring friends.

Leaving the ancient and interesting old city of York, after having spent the night at that old-fashioned hotel, the Windmill, whose buxom and good-natured landlady is so well known to motor cyclists, we were soon whirling away down through Bootham Bar and along the straight flat road leading direct to Gilling and Helmsley—the old-fashioned market town on the east of the Hambleton Hills.

Our party consisted of a 4½ h.p. two-speeded tricar and passenger, and two heavyweights---one mounted on a 2 h.p. lightweight and the other on a 6 h.p. twin—and as the already heavily loaded tricar had undertaken to carry all the luggage, camera, etc., and was considered on that account to be the slowest vehicle of the lot, a rule had been made that it was to form the vanguard of the party and always keep in front. How this rule, excellent though it seemed, led to our party being divided for the best part of our delightful little outing is soon told. For having traversed only about ten miles of the twenty-three dividing York and Helmsley, a mistake in turning to the left instead of to the right caused us to part company with the tricar for the rest of that day, and, greatly to the dismay of the photographer of the party, his camera and apparatus had gone as well!

Ruined mill and roadside spring, Rievaulx.

However, after considering what was the best plan to adopt under the circumstances, and vainly toot-tooting our motor horns for the best part of half an hour, it was at last decided to make the best of our way to Helmsley, hoping to meet the missing tricarist there.

A little further on we began to encounter a series of rather steep hills, which proved a little troublesome for the "little 'un," the rider having

A Jaunt in the North Riding.—

to use his pedals rather vigorously. However, the scenery gradually became more and more interesting, and when nearing Gilling we came across a wild moorland road, and then on through roads bordered with weird-looking fir trees, with a lake or two shimmering in the distance. The two heavyweights were now quite contented except for the lost camera, the lack of which was constantly lamented as view after view worth photographing successively unfolded itself.

Whilst they were thus merrily spinning along it suddenly dawned upon them that they were on the wrong road, and they did not get to know their whereabouts until they passed a beautiful estate, which was afterwards identified as Newburgh Priory—the place where Oliver Cromwell is supposed to be buried in its very walls, and is now the property of one of his descendants, Sir Geo. Wombwell. Arriving in the middle of the beautiful little hillside village of Coxwold, the motor bicyclists' eyes were at once greeted with the sight of the ideal old-fashioned country hostelry, the Fanconbery Arms, half timbered, and covered with a mass of luxuriant creepers.

Inside, the old oak settles and a cheery landlord gave just the touch the place wanted to make it welcome to the now hungry motor cyclists, and they soon were set down to refresh the inner man, and enquire their best and nearest route to Helmsley. This was sooner said than done, for the worthy host had evidently a very hazy notion of what the machines would do to negotiate the various "banks" in the district, and a "bank," he announced with great seriousness, would have to be climbed if they wished to see Helmsley before sundown that day.

The choice of the "banks" included Sutton, Wass, and Kilburn—all of them exceedingly steep, according to local report. At last, after long consideration, it was decided to follow the route *viâ* Wass Bank, although both the riders were afraid of the report of the terrific gradient to be encountered, the twin being badly out of tune, whilst the 2 h.p. was hardly suitable for tackling hills that frightened even big car drivers.

Rievaulx Village and Abbey.

However, they soon were under steam again, and another mile or so along the road brought them in sight of the majestic ruins of Bylands Abbey, standing close to the roadside and situated amongst splendid scenery. This ruin stands right at the foot of the formidable hill, Wass Bank. The hill itself is hidden from view by trees, but a sharp turn through the small village of Wass brought the riders unexpectedly on the gradient. The surface was very peculiar, consisting of a series of step-like rises, caused probably, by the water running across the road during the severe storms which often rage in these hilly districts (any reader who attended the 1908 Sutton Bank hill-climb will doubtless remember one occurring on that day).

Steep hill leading from the Helmsley road into the village of Rievaulx.

The 2 h.p. when about half-way up the hill ceased firing, and as the rider of the twin passed the late rider of the "little 'un," who was rather exhausted by the furious pedalling which he had indulged in, he gave a sickly sort of smile, as much as to say, "All right, wait till you get a bit further on!" And further on,

Rievaulx Abbey, south-eastern aspect.

A Jaunt in the North Riding.—

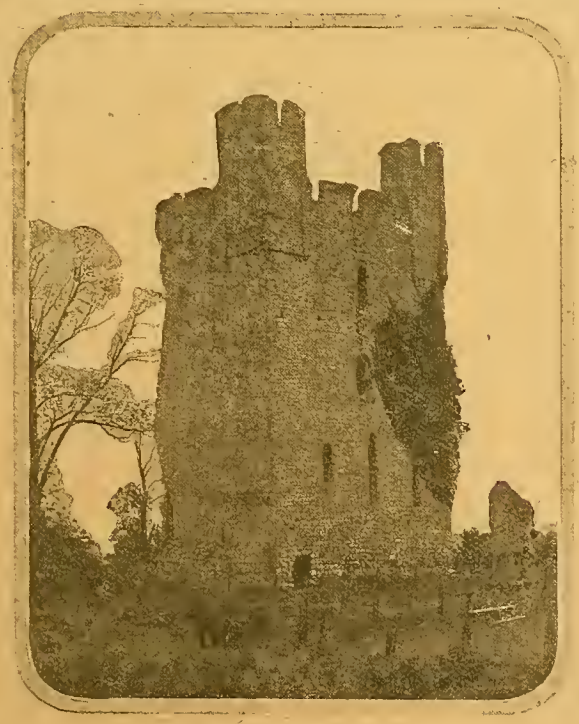
a bad bend and a stretch of about 1 in 4 proved his undoing. As a matter of fact, the 2 h.p. reached the top first, and its rider came down the hill again and helped to push the unwieldy twin the rest of the way to the summit!

When the riders had recovered from their exertions and turned to look back at the grand panorama spread out before them—for, like Sutton Bank, the road has been engineered right up the side of a cliff—a deep ravine covered with trees met their sight when they leaned over the stone wall which protected the road. The views from these "banks" are really grand, as one can trace the roads and villages for miles. It was therefore with reluctance that steps were retraced to the motor cycles, and the journey continued across the bleak moorland road that leads to Helmsley—past the stately herds of deer in Duncombe Park, which runs parallel to the road all the way down to Helmsley. This is a good road for a motor bicycle, but very bad for a tricar, as the ruts on either side of the road, which is very narrow, are sometimes 8in. or 12in. deep.

The Terrace, Rievaulx. One of the small ornamental temples may be seen in the distance.

An Amusing Incident.

Arriving at Helmsley, the first duty was to seek the aid of the local P.C. and ask him if he had seen anything of the missing tricar, which, however, he had not; so he was asked to keep a look-out, and if he saw one to stop it and inform the riders that the party had arrived—which he kindly did. The motor bicyclists afterwards learned that the owner of the tricar had received a shock on entering Helmsley when the man in blue held up his hand and signalled him to stop. Visions of a piece of blue paper and a police court at once appeared before the astonished driver; but explanations were soon forthcoming, and the good-natured officer was warmly thanked for his kindness.



All that remains of Helmsley Castle.

After a good meal at another old-fashioned hotel—the Black Swan, which stands in the old-world market place of Helmsley—the two heavyweights again started their iron steeds, and were soon romping up the gradual incline that leads to that famous little place, Rievaulx, which is three miles distant from Helmsley, and on the direct road from that place to Sutton Bank and Thirsk (nine miles). Arriving at the entrance to the renowned terrace which overlooks the valley, they left their machines outside, paid the entrance fees, and strolled along the beautifully kept velvety lawn, which is half a mile long and has a small ornamental temple erected at either end, the ceilings of which were painted by some famous Italian artist. On looking over the brink of the terrace, the abbey could be seen nestling in the vale below. This is a spot that all motorists visiting Sutton Bank should not fail to see whilst in the neighbourhood it being only seven miles from the top of that famous gradient, and anyone who takes the opportunity of visiting these splendid ruins, will be amply rewarded for his journey, if he only sees this one beauty spot in a charming country.

The Majestic Ruins of Rievaulx Abbey.

At the foot of the terrace previously referred to, one is at once confronted with the majestic ruins of Rievaulx Abbey. The ruins stand in the midst of a group of creeper-covered thatched cottages—which are all pictures in themselves—and the little River Rye, whence the abbey takes its name (Rye Vale), winds its way to the sea through the beautifully wooded valley, whilst on either hand tree-covered slopes shut in this lovely scene, so secluded from the rest of the world. Here—greatly to everyone's surprise—the two riders came across their lost friends, the tricar having come along *viâ* Thirsk and Sutton Bank, which

A Jaunt in the North Riding.

it had gallantly ascended minus its passenger, and soon the re-united party were relating to each other their adventures over an excellent cup of tea supplied by a very old lady at one of the ancient cottages at Rievaulx. After the long-lost camera had been unpacked and a few plates exposed, a start was made for the nearest hotel, where the party rested themselves after an exciting though tiring day in the fresh air amidst lovely scenery. After an evening recounting the many adventures and experiences, and a good night's rest, a grand ride home was enjoyed, and the participants were ready for business next day, thoroughly refreshed in body and mind. S.T.H.

The Northern Meeting of motor cyclists at Richmond (Yorks.) on March 25th. Some of the motor cycles in the old Market Square. Over 350 riders with their machines joined in the assembly, so that the hotel accommodation of the little town was taxed to its utmost capacity.

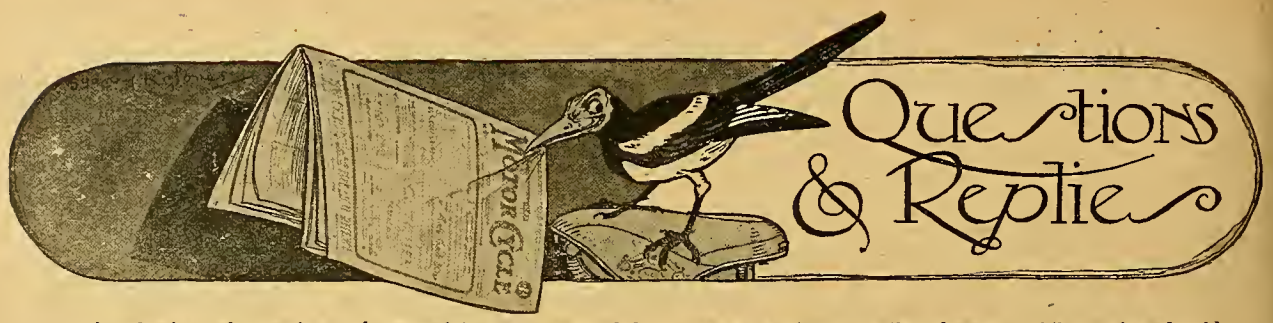
T.A.C. IMPROVEMENTS.

THE Wilkinson Sword Co. are extremely busy at the present moment in turning out T.A.C. motor bicycles, for which a large number of orders have been received. Since its appearance at the Stanley Show the machine has undergone several improvements. The design and material of the starting device have been considerably altered for the better, and the device now works admirably. The inlet pipe and carburetter are extremely neatly fixed to the engine. The pipe is provided with four outlets, which fit tightly against the inlet valve caps, the pipe being held in position by means of two brackets, and of these one end is attached to the cylinder casting and is free to move, and through the other runs a screw with knurled head, which screws into a recess on the top of the pipes. These two brackets hold the pipe on firmly, and enable it and the carburetter to be removed bodily without the aid of tools, so that the valves may be quickly reached. The diameter of the valves has also been increased. The magneto is now provided with an improved distributer, which can be pushed on or pulled off without using tools, as it is held in position by spring clips. The neat little three-speed gear box is provided with a sump or well, at the bottom of which there is a drain plug, so that the dirty oil can be quickly run out. The standard gears now fitted are as follows: First speed, 9.8 to 1; second speed, 6 to 1; third speed, 3.5 to 1. The worm drive has been fitted with a new ball thrust, which has greatly added to the efficiency of the transmission. Altogether things look very hopeful for the T.A.C., and it is a machine with which we hope to have a closer acquaintance on the road at no distant date.

Opening run of the Newcastle Motor Club to Belsay. (See Club News pages.)

SPEED NERVE AND PETROL

BY CHARLES DIXON, R.I.



A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

Restoring Compression.

I should like to know, if I fit new piston rings to my engine to improve compression, whether I must have the cylinder reground? Some manufacturers, I believe, recommend a new cylinder in preference to re-grinding.—C. G.

First of all we should recommend you to try fitting new piston rings. If these do not give the desired result after, say, 200 miles running, it would be better either to have a new cylinder, or to have the old one rebored.

Irregular Firing.

Could you please tell me why my 4½ h.p. twin only runs on one cylinder at any speed, say, under 12 m.p.h.? It is a little better when using the sidecar, but not much.—J.H.C.

The trouble may be due to (1) the setting of the magneto (or contact breaker if accumulator ignition); (2) the design of the inlet pipes, and it may be possible that at low speeds one cylinder gets more gas than the other; also (3) to any difference there may be in the lift of the inlet valves or tension of the springs. We should require to know more details before we could point to the most likely cause of your trouble.

Gear Drive. Fixed Ignition.

(1.) Is the gear drive and clutch of the 2¼ h.p. F.N. lightweight reliable, and can gear be changed easily while in motion, on rough roads? (2.) Is this machine faster than the 1¾ h.p. F.N.? About what pace will it take one on the level? My weight is eleven stones? (3.) Is the fixed position of the magneto satisfactory for low as well as high speeds?—H.C.

(1.) As regards reliability, we refer you to results. One of these machines successfully completed the 555 miles M.C.C. Jarrott Cup Competition run. The gear can be very easily changed. (2.) The machine should be a good deal faster. We should say about thirty to thirty-three miles an hour. (3.) We find the fixed ignition point is satisfactory with this machine, but if after trial you prefer a variable advance it could easily be fitted to the handle-bar, and the magneto contact breaker controlled by means of a Bowden wire.

Attaching a Motor Set to a Push Cycle.

I notice that there are some makers of detachable motor engine sets for clamping on to ordinary roadster bicycles. I am wanting such an engine for my Humber standard 1908 pattern. Can you tell me if the bicycle will be strong enough to carry such an engine, as I am afraid of the spokes and frame getting pulled to pieces with an engine of 2½ or so horse-power. As there is nothing like that pattern out here, I have to rely on what I hear, and decide on your opinion.—J. D. (Durban, Natal).

We are afraid you would not get very much satisfaction from fixing an attachment to your pedal bicycle. Certainly the spokes would not be strong enough if your roads are at all rough, the spindles would also require to be stronger, and the forks fitted with girders. The tyres would soon give out on account of the strain and extra weight, and the machine would not be comfortable. The cost of the attachment would be quite equal to the price of a second-hand lightweight motor bicycle. Consequently what you had better do is to write to some friend or firm upon whom you can rely, and get them to purchase and send you a good second-hand lightweight, which machine you could get for about £15 or £17 in good order.

J. F. Crundall (3½ h.p. Humber racer), who was placed on scratch mark in the Easter Handicap at Brooklands on Bank Holiday Monday.

Assembling a Medium Weight.

I have ordered a 2½ h.p. J.A.P.-Chater-Lea motor bicycle. (1.) I weigh 11½ stones. Will a lightweight frame be strong enough? (2.) What ought the entire machine to weigh? I want it as light as possible without sacrificing strength for weight. (3.) Do you think it might safely be built to weigh about 110 lbs.? (4.) Do you think this machine will take me up hills 1 in 15 without pedalling, and up to thirty miles per hour on level?—L.A.

(1.) The frame should be quite strong enough for your weight. (2-3.) About 110 lbs. limit would enable the assembler to use substantial fittings throughout. A 2½ h.p. machine can be made to scale slightly under 100 lbs. (4.) The machine when in good order will be capable of exceeding thirty miles per hour maximum speed, and of climbing hills of 1 in 15 with the same gear.

Care Necessary with Petrol.

I have had a wooden structure, 10ft. × 6ft. × 7ft. high, erected in the garden of my premises to house my new machine in. This is my first experience in the use of petrol, and I am ignorant of its properties and behaviour under all circumstances. Kindly tell me whether it will be safe, when the warm weather comes, for me to light the interior of the said structure with a lamp, such as a hurricane lantern, so that I can do adjustments there in the evening, and what is the limit of distance within which a naked light should be brought of the machine with the petrol in its carburetter and tank. Of course, I shall not store any other petrol inside the shed. What is the best method of lighting when electricity is not available?—E. G.

You might be able to go for several years without having an accident from using a lamp, but petrol is curious stuff, and one never quite knows what it will do. In the event of any petrol being spilt from the machine when dismounting the carburetter the room might easily be filled with vapour in a short time. The vapour is heavy, and sinks to the ground, so that, if by any chance you set the lamp on the ground to examine some nut or other, a conflagration might occur. Consequently, we think that the best plan is for you

to fit your shed up wtih a small electric lamp, run off a 40 a.h. accumulator, or use a small portable electric lamp. There would then be no danger, and you would have quite sufficient light for ordinary purposes.

The Timing of a Magneto.

[?] I understand the best way to drive a 3½ h.p. magneto motor cycle is by well advancing the spark, keeping it there, and regulating speed entirely by throttle and air lever. With my 1909 machine if I attempt to do this a slight tapping noise at once starts, and to stop it I have to retard the spark to quarter advance. This tapping can be heard above the noise of the engine, and is a much smaller noise than the loud hard click caused by a steep hill. Does this tapping come under the head of knocking? The nearest approach I can get to driving on throttle alone is by first putting the spark lever at quarter advance, getting speed up on throttle, and then getting further speed by very gradually advancing the spark nearly to full. The tapping goes on during the whole of this operation more or less, but dies away as speed accelerates. Having at last got spark lever to desired position (by now I am going thirty to forty miles an hour) I cut down gas and give as much air as possible till I get engine down to a nice hum (instead of a roar) and a comfortable pace. But this lasts a very short time, as the slightest advance to throttle at once starts the tapping again, the slightest rise (as over a bridge) or extra puff of wind has the same effect, and so I have to retard the spark, and the whole operation of getting up necessary speed to avoid tapping has to be gone through again, and so on. It amounts to my perpetually moving spark lever backwards and forwards during whole of journey, just as much as, if not more than, the throttle lever.—E.J.H.

It is very hard to say if the noise is actually "knocking," but we should be inclined to think that it is, and the cause is apparently due to the magneto spark being timed to occur too early in the stroke. Your method of driving seems to be absolutely correct at the present time. It is quite possible to drive with more or less fixed ignition on a motor bicycle within certain limits, but this very much depends upon the setting of the magneto. This leads us to suppose that your magneto is rather far advanced. We should have it retarded slightly as an experiment, and note the effect. It may require setting still later if you are desirous of running at all speeds with the spark lever fully advanced.

A steep section of Sutton Bank immediately after rounding the hairpin bend.

Petrol or Paraffin.

[?] Every time I wish to start my engine from cold I am obliged to inject petrol. Is this objectionable or harmful to the engine? A friend tells me it is, and by washing oil off the piston is likely to cause a seizure.—S.E.H.

Provided you only inject a few drops of petrol in the engine, no harm should result. Thousands of riders adopt this practice, and we have never yet heard of any direct trouble accruing. An overdose might wash away the oil and cause a seizure, or crank case explosion

Current Consumption. Road Dangers.

[?] (1.) Please say if there is any means of ascertaining the amount of current consumed by plain coil with make and break contact? (2.) What symptoms may be expected when magnets of magneto machine are becoming weak, and is this the result of time or the distance in use? (3.) If any liability attaches to the authorities for damage to machine or person caused by (a) manhole cover projecting above road level at least two inches? (b) Tramlines standing above or below paving in places?—P.H.

(1.) By inserting an ammeter between the coil and the contact breaker. See reply to "D.S.," page 266 last week. (2.) Misfiring for no apparent reason and especially difficulty in starting. Weakening of the magnets is the result of time and excessive vibration. (3.) Morally, you can claim damages in both cases. However, those responsible for the neglect at times are apt to stand a good chance of winning their cases, as they have much money behind them. Should you have experienced an accident from either of these causes it would be as well to send those responsible for the neglect a solicitor's letter, but if you are a member of one of the motoring organisations it would be better to lay your case before them. A matter affecting the general welfare of motorists is sometimes taken up.

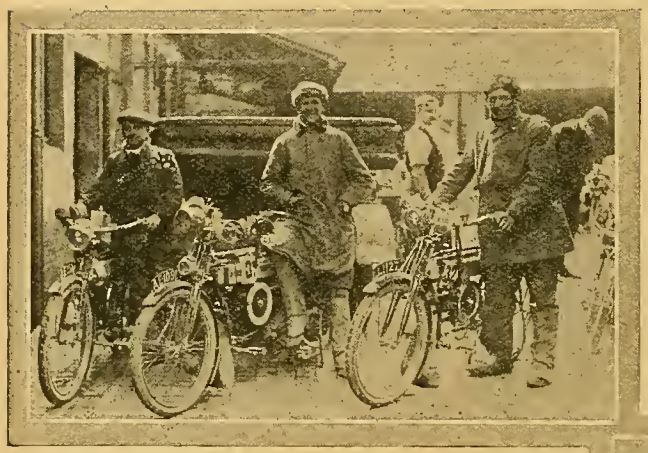
The steepest part of Sutton Bank, showing the road winding away in the distance. A motor cyclist is seen topping the gradient at a good pace.

HINTS ON CARBURETTER ADJUSTMENTS.

By B. H. DAVIES.

THE novice is generally beset by a hankering notion that his carburetter is wrongly adjusted, and even if he has patronised a firm which can be trusted to send out the carburetter adjusted to a fair all-purpose compromise, the keen rider will want to make fresh adjustments to suit varying climatic and road conditions. The following notes give details of some simple methods I have found very serviceable for obtaining maximum efficiency,

M.C.C. JARROTT CUP COMPETITION AT EASTER.



Three riders of Douglas machines who survived the 555 miles run. W. W. Douglas, E. Kickham, and P. Phillips.

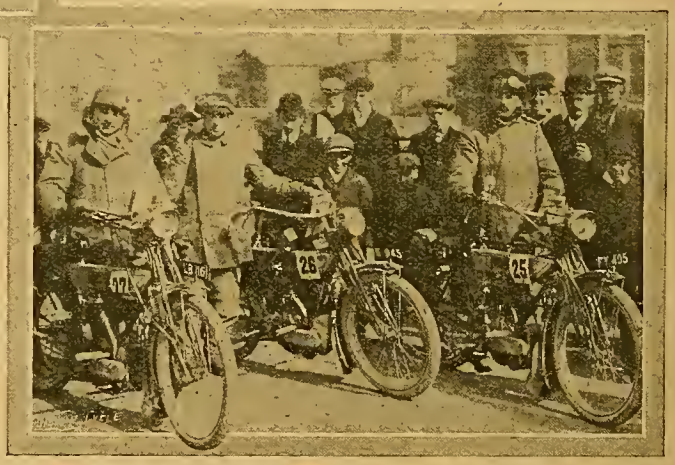
and this method conquers most of the obvious difficulties. It may be taken for granted with every carburetter of good make that the extra air orifices and the fixed air choke tube are roughly suited to the engine in question. A choke tube equal to one-sixth the diameter of the inlet pipe affords a fair working compromise of efficiency and flexibility. The adjustments which may be advantageous are generally confined to the size of the jet and the level of the petrol in the jet. The level of the petrol is the point most likely to repay attention, and the most awkward thing to verify or alter. Up to this year I have always tested mine by a very quick and simple method. It is obvious that the level of spirit in the jet is affected by unscrewing the milled cap of the float chamber a turn or two. On almost every carburetter the unscrewing of this cap *raises* the level in the jet, for it lifts the bobweights of the float needle higher from the float, and therefore a higher level of petrol is required in the float chamber to press the float against these bobs, and cut off the supply by jamming down the needle. Very well.

Testing the Engine on the Stand.

I first make sure that the petrol does not flood out of the jet with the machine at rest and the engine stopped. If so, it is scarcely probable that the level is too high. The engine is then started on the stand, and the lid of the float chamber unscrewed a turn or two, and the behaviour of the engine noted. If the engine gains in speed and sharpness of bark, the higher level thus obtained evidently suits it. To make the higher level permanent, either of two adjustments may be employed at will. One is to lock the float chamber lid in its new position by packing it up with a washer. The other is to mark the amount by which the level has been increased, and to shift the collar of the bobweights on their needle to suit. Thus the correct level for maximum efficiency is swiftly obtained. The setting of the jet is even easier. Most carburetters nowadays possess either interchangeable or variable jets, and an hour spent at the nearest test hill will soon decide which jet is the one to use when out for a medal. Otherwise a long tapered needle (a fairly long stocking needle is usually the best), a millimetre gauge, and a single spare jet are all that are required.

Reamering out the Jet Tube.

The spare jet in the above-mentioned case should be of narrow bore, with a single hole of the slenderest diameter through it. Take your original jet, and make a road test with this jet on the worst hill to be found. If not satisfied, reamer this jet out a little; the needle may be used, but a triangular reamer is preferable. Begin by increasing the size of the jet very slightly indeed. Test the enlarged jet on the hill till dead certain whether the alteration is an improvement or not. If any difference is noticeable, remove jet, stick needle through hole as far as it will go, and measure the



The Bradbury contingent—A. T. Stanton, G. Wray, and Hugh Gibson. The two last-mentioned completed the run, Stanton suffering tyre troubles almost within sight of the finish.

amount by which the needle protrudes with the millimetre rule. Some jets are not reamered with a parallel-sided reamer, but taper, usually from the under towards the upper orifice. If so, be careful to gauge size of hole by passing the needle up the jet from beneath, and to do any reamering enlargements from the under side. Make a note of the amount of projection of needle in your pocket book, and next see if a further enlargement increases the efficiency still further. At each fresh test, measure and note the projection of the needle. After three or four tests you have arrived at a certain fact, viz., that the engine climbs fastest or farthest with a jet of such a size that your gauging needle projects so many millimetres when pushed tight in from the under side. Take the spare jet and reamer it out till the needle projects the exact number of millimetres

Hints on Carburetter Adjustments.—

arrived at by the test; and, hey, presto! you know that your jet is just right. With an interchangeable or variable jet no tools or notes are required; you simply make a couple of trial ascents with each jet or setting, and judge the effect by the pulling powers of the engine.

No anxiety need be felt about the extra air adjustment. Its verification is absurdly simple. If the supply is right, the engine will just, and only just, accept all the air you can give when the engine is

SUTTON BANK HILL-CLIMB. F. Mackay (Harrogate M.C.C.) travelling well on his Rex. He is just above the bad bend, and the road he has traversed may be seen winding upwards in the background.

running at its very fastest speed on the hottest of days. If an engine will take all the air available at half speed, or even at full speed on a cold day, it is certain it could do with more air at full speed on a hot day, and the orifices need enlarging. If an engine will never under any circumstances take full air, the probability is that it always gets a trifle too much, and it may then be awkward to start. As the upper air can be shut clean off by lever, either a narrower choke tube or a larger jet is obviously required. A medium choke tube is essential to flexibility. A large choke tube may spell power when used with a large jet, but cannot give flexibility.

Insufficient air supply on most twins.

I have never owned a twin which was not improved by adding a second air intake in the inlet pipe, and my first attention to a new twin is to drill a hole in the inlet pipe and fit a sliding collar over it. Some of my twins have started from cold in summer with a hole ½in. by ¼in. wide open in the inlet pipe. The above notes make it plain that I regard the use of a spring snap lid to the float chamber as a retrograde step in design, since it deprives riders of a very convenient mode of verifying the petrol level, and, needless to say, the petrol level on the best machines needs resetting from time to time as the needle and bobs wear.

An Experience.

I remember in one Auto Cycle Union trial my machine began to run comparatively feebly, and baffled me for a time, till at last one day in the preliminary rush at a test hill I bent down and unscrewed the float chamber cap a turn or so. It simply shot away with me. I never had time to reset the bobweights on the needle, but I got two or three copper and asbestos valve cap washers, and finally by threading two of them round the thread of the cap was

The starting point in the Sutton Bank hill-climb on March 26th. H. Wheater (holding the flag) is starting the unlucky Indian rider.

able to restore the correct level, which had been spoilt by rapid wear of the float needle and bobweights. Since then I have noticed one or two ingenious devices for altering the level by means of an adjustable float chamber lid, provided with an arrangement for locking it in position when correct adjustment is obtained.

Members who attended the ManchesterMotor Club opening run on the 19th ult.

THE BROOKLANDS APRIL HANDICAPS.

THE B.A.R.C. will hold the following motor cycle races at Brooklands on the 27th and 28th of this month.

THE WEDNESDAY APRIL HANDICAP.—For all classes of motor bicycles the cubic capacity of whose engines does not exceed 670 cubic centimetres. Starters barred. Entrants to state on their entry forms whether or not their engines are furnished with drilled cylinders or auxiliary exhaust ports. Distance, about eight miles.

THE WEDNESDAY WEYBRIDGE HANDICAP.—For all classes of motor bicycles the cubic capacity of whose engines exceeds 500 and does not exceed 1,000 cubic centimetres. Starters barred. Entrants to state on their entry forms whether or not their engines are furnished with drilled cylinders or auxiliary exhaust ports. Distance, about eight miles.

THE THURSDAY APRIL HANDICAP.—For motor cycles that have been entered for the Wednesday April Handicap. The handicaps to be the same as for the Wednesday April Handicap, except that the winner of that race will be penalised 40 secs., the second 35 secs., the third 30 secs., the fourth 20 secs., the fifth 15 secs., and the sixth 10 secs. Starters barred. Distance, about eight miles.

THE THURSDAY WEYBRIDGE HANDICAP.—For motor bicycles that have been entered for the Wednesday Weybridge Handicap. The handicaps to be the same as for the Wednesday Weybridge Handicap, except that the winner of that race will be penalised 40 secs., the second 35 secs., the third 30 secs., the fourth 20 secs., the fifth 15 secs., and the sixth 10 secs. Starters barred. Distance, about eight miles.

In each race the entrant of the winner to receive 10 sovs. or cup at option, the entrant of the second 5 sovs. or cup at option, and the entrant of the third 3 sovs. or cup at option.

There must be twenty-five entries for each race, or the race may be void at the option of the executive, or the number and value of the prizes reduced.

Entries close April 14th at twelve noon. Entrance fee 10s. 6d. p.p. for each event.

The B.A.R.C. Committee is to be commended on its action in increasing the number of motor cycle events, as these races always secure a good number of entries.

The inaugural run of the newly formed Redditch and District M.C.C. was well attended. The members are shown assembled in the yard of the Unicorn Hotel.

NEW BLOOD ON THE A.C.U. COMMITTEE.

THE new A.C.U. Committee, which has recently been elected, should be a particularly strong one. In addition to the valued workers who have made the A.C.U. the powerful body it is, the following newly elected members have been added as representing the R.A.C., Major Lindsay Lloyd and Mr. J. R. Nesbit. Than Major Lindsay Lloyd the committee could not find a better man. Being an officer who was formerly a Royal Engineer, he understands the technical side of motor cycling far more deeply than the average individual, while the fact that he holds the position of clerk of the course at Brooklands is sufficient proof that in helping to organise a public body no better man could be found, since to make a success of this post, as Major Lloyd undoubtedly has, needs no small amount of tact, diplomacy, and general ability. Mr. J. R. Nesbit is chairman of E. M. Bowden's Patents Syndicate, and is in consequence closely in touch with motor cycling, and on the Scottish A.C. is one of those members who work indefatigably, and by his powers of organisation has worked up that club to the high position it now holds. Representing the private members, Mr. R. O. Mitchell is a young and energetic member of the trade who should bring into the Union a healthy strain of new blood, which cannot but help to invigorate the A.C.U. Committee. Mr. W. H. Wells is an old member his fellow committeemen are glad to see back again. In the past he has done excellent work, and has proved himself to be a valuable mouthpiece of the trade on the committee. A few trade men on the committee of any motoring body are, in our opinion, absolutely necessary ably to voice the views of the trade on such important matters as trials and competitions. Mr. Hawkins is a private member of whom not much has been heard in the past, except that he regularly attends all the council meetings. We do not doubt that he, too, will do valuable work in the new position which he has lately taken up. Altogether, we consider the A.C.U. Committee to be stronger this year than it ever has been before, and we heartily wish it success in its labours.

OCCASIONAL COMMENTS.

By "IXION."

Was it a Turbine ?

A motor cyclist asks me to give publicity to the following weird yarn in the hope that the individual concerned will supply some further details for publication in these columns. I accept no responsibility for it. He says a stranger he met by the roadside bet him that his (the stranger's) machine would propel itself with the belt off. The stranger then removed his belt fastener, and went back a hundred yards or so up the road, substituting a piece of twine for the belt hook. He came back driving at about eight miles per hour. Opposite the observer the belt fell off, as the twine broke, and the engine popped merrily on for a quarter of a mile beltless. The mysterious motor was provided with an unusual metal box where its silencer ought to be, and my correspondent believes he has seen the first motor cycle turbine. Turbinists, please roll up, and send line drawings of your patents to the editor. The machine is said to have had a Precision engine.

Automatic Carburetters.

I believe the next important alteration in motor bicycle specification will be an automatic carburetter. Excellent as present-day carburetters are, few of them claim to be automatic. The type I am using at present will choke from too rich a mixture unless I am particularly spry in jumping on when I start, so as to get a little extra air supplied at once, while on hills the air lever requires quite clever management if Birdlip is to be climbed. One or two so-called automatic carburetters sell in fair quantities, but the expert users of them mostly add a leak valve to obtain maximum efficiency. Practised riders no doubt enjoy fiddling with levers, but the prize duffers, who, after all, form the majority of our ranks, dislike it intensely, especially when a mistake means a false start or a failure on a bad hill, as would inevitably be a frequent occurrence with a novice riding my own machine, for instance. I hope truly automatic carburetters will be numerous at the next shows, if only as alternatives or, as the Yankees call them, "options." I have just had a very ingenious device of the type submitted to me by a working man, which has no springs or other parts liable to derangement. I have also been helping a friend to tune up a three-jet car vaporiser, which is automatic and derangement-proof. It takes in all its air at the bottom through choke tubes, and when these are correctly set no leak valve can effect any improvement, while the fuel economy is superior to that obtained with the best adjusted single-jet device. Consequently automatic carburation need not spell any decrease in efficiency, and it will therefore be extremely popular with the lazier type of rider. It does reduce the interest in driving, but if it is fitted as an "option" the club expert can continue to disdain it.

Tyre Gaiters.

The tyre gaiter is an item that very seldom figures in a motor cyclist's kit, and yet it is not infrequently wanted, and when wanted is very badly wanted indeed. Two of my acquaintance have had their Easter holidays spoilt for want of this light and inexpensive device. One of them ran over a broken jam pot, and sliced his back tyre pretty well down to both beads; the other was using a new back cover with a fault in the fabric, and, though both were experts in tyre repairs, neither was able to proceed far on the proposed journey simply because his small kit did not contain proper articles for repairing bad holes in the covers.

A Carburetter Adjustment Tip.

A correspondent asks me to mention his method of testing his carburetter adjustments. Riders use various means. One man keeps putting his machine at a favourite hill till his ascent becomes most rocket-like. A certain technical professor attaches a tube and gas bag to the exhaust port, takes a sample of the waste gas, and analyses it. The writer in question removes his silencer and exhaust pipe, and runs his engine on the stand in the dark until he has got a colourless exhaust. We all know that the hottest part of a flame of a common gas jet is the non-luminous portion. My correspondent thought his carburetter was beautifully adjusted until he made the above test, when he found that his exhaust flame was wholly coloured. Various adjustments transformed the flame through the whole gamut of colours until at last he got it practically non-luminous, which as he says, signifies perfect combustion. He admits this only applies to the flame when the engine is running "all out," but he hopes by various radical alterations in the design of his carburetter to obtain a colourless exhaust flame at all speeds of the engine.

A Hint to Buyers.

When a salesman is enlarging upon the merits of his adjustable pulley it is wise to discover by actual test what is actually the lowest gear obtainable with it. Some engines have crankshaft bosses of such dimensions that no adjustable flange can be screwed out to give a gear much below 4½ to 1. Most riders buy adjustable pulleys with the idea of using them as emergency substitutes for variable gears when their summer tour brings them face to face with an abnormal hill. Now 5 to 1 is a gear that an ordinary rider will need for such common or garden hills as Dashwood or Rectory if his machine is not in super-excellent tune, and is loaded up with a heavy touring kit. Such favourite touring grounds as Devonshire and Scotland bristle with hills in which a 5 to 1 gear is nowhere near low enough for the sort of rider described. An adjustable pulley is in no sense a true emergency gear unless it can on occasion supply a gear as low as 6½ to 1. This point should therefore be verified before spending a guinea or so. Some engines do not admit of such small pulleys, and some cheap pulleys, which are made from castings, require such a thickness of metal at the boss to avoid bursting that, no matter how slender the crankshaft bearing on the engine may be, the pulley will not allow of a really low gear. With the capacity of a 6½ to 1 gear even a duffer should be tolerably confident upon the hills he may strike on tour, even when his machine is a heavily laden 3½ h.p. somewhat out of tune. A 5 to 1 gear is, of course, low enough for a very powerful twin-cylinder machine in such emergencies.

B.M.C.R.C. SECOND 1910 MEMBERS' MEETING.

ON Wednesday next, the 13th inst., the following events will be held at Brooklands by the British Motor Cycle Racing Club :

2.30 p.m. RECORD TIME TRIALS, first of the 1910 series. Distances : Kilometre and mile. Each competitor will be allowed one trial flying start. Performances will be classified in accordance with the undermentioned engine sizes : Class E.—Engines not exceeding 275 cc. Class B.—Engines not exceeding 350 cc. Class C.—Engines not exceeding 500 cc. Class D.—Engines not exceeding 750 cc. Class E.—Engines not exceeding 1,000 cc. Certificates will be issued for the best performance made in each class and the Club's gold medal will be awarded in each class for the best aggregate performance made during 1910. In order to be eligible for the latter award, members must have taken part in all but two of the series of time trials held by the Club during 1910. Entry fee, 1s. each class.

3.30 p.m. RELAY RACE. Open to members in pairs, one of each pair to enter a single cylinder and the other a multi-cylinder motor cycle, the total capacity of the two engines not to exceed 1,170 cc. Either of the pair may elect to start, and that competitor will be provided with a bracelet that must be worn whilst riding. On completing a lap the rider must stop and then hand the bracelet to his partner, who will ride a lap and hand the bracelet back to his partner in similar fashion. The race will consist of four laps in all, each partner riding two alternate laps. The starting, the three changes, and the finish to take place at the fork. First prize, two gold medals; second prize, two silver medals. Starters barred. Entry fee, 5s. each pair.

4 p.m. ONE HOUR TOURIST TROPHY RACE, for motor cycles complying with the 1910 T.T. regulations, except that purely touring accessories such as mudguards or tool-bags may be removed. First prize, silver cup presented by Mr. H. H. Collier; second prize, the Club's gold medal; third prize, the club's silver medal; and certificates to all finishing. Starters will be permitted in this event. Entry fee, 5s.

Entries close last post this evening (Thursday), and should be addressed to the hon. sec., Mr. T. W. Loughborough, A.M.I.A.E., Ashleigh House, Erith. Kent.

NORTHERN LEAGUE OF MOTOR CYCLE CLUBS.

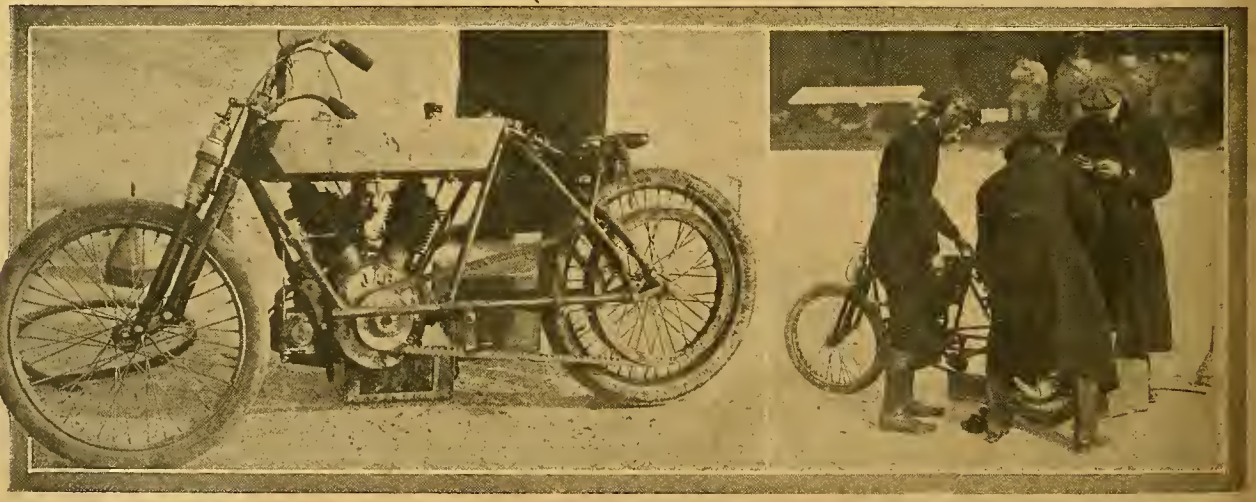
After the hill-climbing competition at Staxton on Easter Monday afternoon, a large number of members of the Northern League adjourned to the Balmoral Hotel, Scarborough, where tea was provided, after which a smoking concert was held, Mr. James R. Kelly, of the Leeds Motor Cycle Club, presiding. An interesting address on "Some Points in the Theory of Belt Transmission" was given by Mr. D. Bradbury, the hon. secretary of the Sheffield and Hallamshire Club. This was followed by an exhibition of lantern slides of the aviation meetings at Doncaster and Blackpool, and several slides of last year's Staxton hill-climb. These were shown and explained by Mr. J. W. F. Tranmer, of the Scarborough Motor Club, the lantern being ably worked by Mr. H. Kettle. It was proposed by Mr. J. E. Brooke, of the Harrogate Motor Cycle Club, seconded by Mr. E. Dent, of York, and unanimously carried, that Mr. H. Frain, of Snainton, be appointed hon. secretary of the Northern League, and that a conference be called, to meet at York at an early date, to consider the position of the Northern League in relation to the Auto Cycle Union. The meeting closed with unanimous expressions that the proceedings of the whole day had been a huge success. It was also decided to hold a flying kilometre contest at Whitsuntide.

The *Yorkshire Evening Press* contained the following paragraph : "One of the amusing features of the afternoon's contest was the appearance of an A.C.U. official, who warned each competitor of the dire results of his participation in the competition. It is said this same official himself defied last year the body which he yesterday represented."

The impression among the motor cyclists at Staxton was that if the Auto Cycle Union would ask for a reasonable inclusive sum to hold an inter-club hill-climb, they would be quite ready to recognise the Union as the authority of the sport.

MARTIN AGAIN ATTEMPTS RECORD.

A communication reached our office on Friday last to the effect that Harry Martin had designs on the two hours' 750 c.c. record at Brooklands Track that afternoon. Martin, who rode a twin-cylinder A.S.L. with J.A.P. engine, started just before three o'clock, but after being on the track for threequarters of an hour, and travelling at a good speed, was compelled from various causes to abandon the attempt. Messrs. Straight and Ebblewhite were the timekeepers.



The air-sprung frame A.S.L. on which H. Martin again attempted to break record last week. The engine is a J.A.P. twin-cylinder.

Immediately before the start. The attendants are inflating the air-springs to the desired pressure — a good point of the A.S.L. suspension.

RESULT OF M.C.C. JARROTT CUP COMPETITION.

WINNER OF THE JARROTT CUP AND CLUB GOLD MEDAL.

1. Sir R. K. Arbuthnot, Bart. (3½ h.p. Triumph).
   Error on outward journey ... ... 1m. 14s.
   Error on homeward journey ... ... 55s.
   Total error ... ... 2m. 9s.

WINNERS OF CLUB GOLD MEDALS.

	Rider and machine.	Total error.
2.	S. G. Frost (4½ h.p. Minerva, twin) ...	3m. 14s.
3.	Stanley Webb (3½ h.p. Triumph)	3m. 55s.
4.	H. C. Griffin (3½ h.p. Griffin-Simplex-Premier)	4m. 13s.
*5.	G. L. Fletcher (2¾ h.p. Douglas, twin) ...	4m. 25s.
6.	S. C. Perryman (3½ h.p. Ariel)	4m. 59s.
7.	A. J. Stevens (3 h.p. Wolf, twin)	5m. 58s.
8.	W. W. Douglas (2¾ h.p. Douglas, twin) ...	7m. 3s.
9.	R. O. Clark (2¼ h.p. F.N., two-speed) ...	7m. 9s.
10.	E. Gwynne (7 h.p. V.S., twin)	8m. 47s.
11.	P. G. E. James (3½ h.p. Triumph)	9m. 8s.
12.	Hugh Gibson (3½ h.p. Bradbury)	11m. 17s.
13.	Eli Clark (2¾ h.p. Douglas, twin)	11m. 56s.
14.	E. Kickham (2¾ h.p. Douglas, twin) ...	12m. 0s.
15.	P. Phillips (2¾ h.p. Douglas, twin) ...	12m. 40s.
16.	E. Wray (3½ h.p. Bradbury)	15m. 17s.

*Winner of P. H. Trotman's prize for best performance on a lightweight.

WINNER OF SILVER MEDAL.

17. F. C. Dee (7 h.p. V.S., twin).

History of the Jarrott Cup Competition.

The Jarrott Cup has been presented to the Motor Cycling Club for three consecutive years by Mr. Chas. Jarrott. Each year the winner has beaten the previous best performance, and the percentage of riders to complete the double journey has improved.

S. G. Frost on a 4½ h.p. Minerva twin won the first event held in 1908, when the contest was more severe than it has been since, on account of the outward and homeward journeys being completed in two consecutive days.

In 1908 S. G. Frost's total error from punctuality at the several secret checking and timing stations was 4m. 9s.. F. G. Smith (3½ h.p. Triumph) won last year with a total error of 2m. 22s.; Sir R. K. Arbuthnot, this year's winner, 2m. 9s. Twenty-five entries were received for both the 1908 and 1909 events, which were held during the August Bank Holiday, but this year the club's decision to hold the competition during the Easter holidays resulted in an increased number of entrants, totalling thirty-six, thirty-five of whom actually started. Easter therefore apparently suits members of the club better than August.

Taking into consideration the extremely arduous test, it is interesting to compare the smallest and largest machines which took part in the competition. The smallest was R. O. Clark's 2¼ h.p. F.N., with a cubical capacity of 249 cc., the largest being the three 7 h.p. twin-cylinder V.S. machines which were ridden by E. Gwynne, V. Olsson, and F. C. Dee and the 7 h.p. Peugeot ridden by O. L. Summers, the cubical capacity of these being 944 cc.

It is reported that one competitor who arrived back at Cranford Bridge in the small hours of Tuesday morning, March 29th, was so tired that he went to sleep on a seat outside the Berkeley Arms, and was found there by the hotel proprietor when he opened the premises to resume business at the usual hour.

INTER-TEAM RELIABILITY TRIAL.

HERTS. COUNTY A.C. WINNERS OF THE SERVICE CUP.

THE marks awarded in the above reliability trial from London to Harrogate and back cannot be announced at present, as there is another joint committee meeting to be held, at which the marks awarded will be approved. We are, however, in a position to announce that the Herts. County A.C. are the winners of the Service Silver Challenge Cup for the first year.

The competition will be an annual one for at least three years, and it is necessary for a club to win it three years in succession before becoming the actual owner of the trophy.

The following were the riders who represented the competing clubs, and it is worthy of note that all except two completed the run:

HERTS COUNTY A.C.

J. S. Harwood (3½ Phelon and Moore)
E. A. Colliver (3½ Triumph)
E. M. Down (5 Indian)
*W. Cooper (3½ Bradbury)
W. Pratt (3½ P. and M.)
F. A. Hardy (5 V.S.)
*H. B. Karslake (3½ Dreadnought)
F. J. Beard (3½ Scott)
A. V. Deacock (3 Wanderer)
A. H. Colliver (3½ Triumph)
B. Marians (3½ P. and M.)
C. Cather Cook (3½ Triumph)
Mrs. Cather Cook (3½ Triumph)

N.W. LONDON M.C.C.

W. Davenport (3½ Triumph)
H. Bean (3½ Triumph)
C. M. Simpson (5 V.S.)
G. E. Purchase (3½ Triumph)
H. V. Bate (5 V.S. and sidecar), retired at Harrogate
C. S. Westacott (3½ Triumph)
G. A. Stern (3½ N.S.U.), retired at Grantham
G. H. Hollis (3½ Triumph)
R. G. Goslett (3½ P. and M.)
A. J. Browne (9 Bat and sidecar)
Glyn Rowden (7 Bat and sidecar)

*Outside schedule at Harrogate.

Gathering on the occasion of the Southampton and District M.C. opening meet.

CURRENT CHAT

Time to Light Lamps

(GREENWICH).

April	7	..	7.41	p.m.
„	9	..	7.45	„
„	11	..	7.48	„
„	14	..	7.53	„

Police Trap.

We have received information of a police trap which is in operation between Andover and Weyhill on the main road to Wincanton.

A Road Danger.

The Finchley and Barnet Centre of the Motor Union is organising a petition protesting against the erection of central tramway standards on the Great North Road.

The M.C.C. Team Trial.

Six clubs have already decided to send teams to compete for *The Motor Cycle* challenge cup in the Motor Cycling Club's Team Competition near Daventry on June 18th. The Edinburgh Motor Cycling Club will again be represented. Last year four of its team gained full marks. The list of competitors will be found each week in our "Future Events."

A Lucid Explanation.

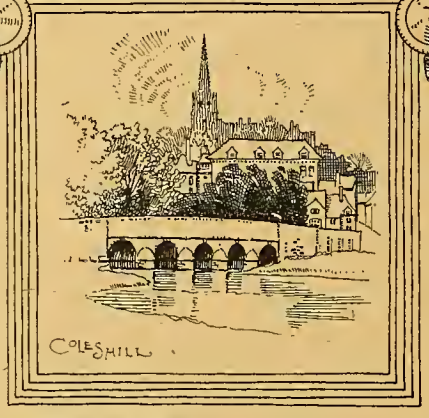
Joshua Wheelrim in *Motor Cycling* (Chicago) gives the following lucid explanation of pre-ignition: "When there is carbon in ther cylinder it gets red-hot and stays that way until a fresh charge of gas mixture is admitted ter ther cylinder, when it fires ther stuff before it is time and catches ther piston coming the wrong way. When ther regular spark gets ter work there ain't any gas ter explode."

A.C.U. Lecture.

A lecture on "The Role of the Motor Cycle in Campaigning" will be given by Capt. C. Battine this evening at 8.30, at the Royal Automobile Club, 112, Piccadilly, W. Any reader may obtain a ticket upon application, or admittance to the lecture on presentation of his visiting card.

Another T.T. Aspirant.

F. Mackay, of Harrogate, has, we hear, decided to compete for the Tourist Trophy. He would have competed in the Staxton Hill-climb but for fear of being suspended by the A.C.U., the Staxton event being banned. His brother, J. Mackay, was a competitor in both the Sutton Bank and Staxton hill-climbing competitions.



Special Features

Sydney R. Jones

A JAUNT IN THE NORTH RIDING. Illustrated.
CLUB NEWS FROM ALL PARTS.
HINTS ON CARBURETTER ADJUSTMENTS.

Martin's Win Upheld.

At the recent race meeting of the British Motor Cycle Racing Club, on the 16th ult., there was some doubt as to the validity of Martin's win in the All-comers' Handicap Race, owing to his trembler blade breaking just short of the finishing line. The judge decided that he won, but the matter was gone into formally at a committee meeting held recently, with the result that the judge's decision was upheld.

A Praiseworthy Performance.

G. L. Fletcher's performance in the M.C.C. Jarrott Cup Competition was distinctly praiseworthy. He not only carried off P. H. Trotman's prize for the best performance on a lightweight motor bicycle, but he came very near to the leaders, actually finishing fifth, only 1m. 16s. separating him from the cup winner, Sir R. K. Arbuthnot. Fletcher rode a lightweight twin Douglas. A. J. Stevens, riding a twin-cylinder Wolf, was next in order of merit for the lightweight prize, his total error being 5m. 58s.

Hill-climbing contest on the famous Shap Fells organised by the Westmoreland Motor Cycle Club. (1.) Scene at the starting point. (2.) A competitor crossing the finishing tape.

Danger of Level Crossings.

A peculiar accident took place at the level crossing over the Great Northern and Great Eastern Railways at Beckingham the other evening. A clergyman who had ridden his motor cycle from Oldham took the red danger lamp on the closed gates for the tail light of a traction engine, and in turning aside to pass the vehicle, as he thought, he crashed into the closed gates. His machine was wrecked, but he escaped with a severe shaking.

Another Score for Two-stroke Engines.

Staxton Brow and the Staxton Hill, it should be noted, are two entirely different gradients. Staxton Hill is the rise on which the competition was held on Easter Monday, the average gradient of the steepest portion (which measures 1,550ft.) being 1 in 6.9. Staxton Brow is the steeper ascent; in fact, according to the *Scarborough Post*, it had not been surmounted on a motor cycle until Easter Monday morning, and only one car has negotiated the hill. The motor cyclist who performed the feat was Wm. Fawcett, of Harrogate, and the machine he rode is a twin-cylinder, two-stroke, two-speed Scott—a veritable hill-eater. By the way, we shall have something to say with regard to the Scott in an early issue.

M.C.C. Hill Climb at a Secret Venue.

The next event of the Motor Cycling Club is a hill-climb for cars and motor cycles (members only) to be held on the 30th inst., on a gradient north of the Thames, and in the district lying between the Oxford Road and the Great North Road. All machines must be standard tourist models. Three classes for motor bicycles and one for passenger motor cycles have been included.

A.C.U. Second Quarterly Trial of 1910.

The next Quarterly Trial is to be held on April 20th (Wednesday) over the usual course from Uxbridge to Banbury and back. Entry forms are now ready.

T.T. Race Fund.

Donations to the Tourist Trophy Race Fund have been received as follows: Kent Automobile Club, one guinea; Dr. E. W. Brewerton, one guinea; Western District M.C., half-guinea; *The Motor Cycle*, £5.

Entries for the T.T. Race.

Further entries for the Tourist Trophy Race on May 26th have been received from J. H. R. Loxham, C. Goulding (machines not stated), and Howard Smith (3½ h.p. Triumph), bringing the total to forty.

Motor Cycle Exhibition at Olympia.

At a meeting of the Management Committee of the Society of Motor Manufacturers and Traders on Thursday last, the agreement with the Cycle and Motor Cycle Manufacturers and Traders Union, Ltd., for their tenancy of Olympia for the purpose of holding an exhibition in November next, was executed on behalf of the Society.

The Jarrott Cup Competition.

Capt. Sir R. K. Arbuthnot's Jarrott cup win is an extremely popular one, and is a just reward for his consistent performances in various long distance trials promoted by the Motor Cycling Club. The London-Land's End-London course is exceptionally severe, and the fact that 555 miles have to be ridden in two days, with a rigid adherence to schedule times at different points, renders the trial probably the most arduous of any, excepting perhaps the double journey London - Edinburgh-London competition.

Hill-climbing in the Antipodes.

The Sydney (N.S.W.) Motor Cycle Club held a hill-climb open to amateurs affiliated to the N.S.W. Cyclists' Union on the hill at Eastwood on February 26th. Fourteen started, racing in pairs through heats, semi-final, and a final. O. Clafton, who has recently joined the ranks of motor cyclists, rode a 5 h.p. Sarolea, received 18s. start, and won from H. Knight-Eaton (3¾ h.p. Premier), 12s. D. St. Clair (5 h.p. Rex) did fastest time from scratch, 50s. The hill is three furlongs long, and of an average gradient of 1 in 10.

An Unfortunate Collision.

A member of the Western District M.C., Robert King, met with an unfortunate accident in Uxbridge Road last Saturday afternoon, colliding with a girl aged 7. Both the girl and the motor cyclist received injuries of a minor character, but were able to proceed to their respective homes. Mr. King won a gold medal in the End-to-end run of 1908, and a silver medal in the Six Days' Trial last year. Being confined to his room he is disappointed at the prospect of not being able to enter for this year's End-to-end trial

Motor Cycle Racing in N.S.W.

The Australian championship was run for the first time at a race carnival at Sydney, organised by the Motor Cycle Club of New South Wales, on February 16th. H. Jenkins, a representative of the Victorian Motor Cycle Club, proved victorious, riding a 3½ h.p. Tourist Trophy Triumph. In the first heat Jenkins covered two miles in 2m. 30⅘s., and won the final in 2m. 32⅖s.

At the same carnival, a mile scratch race for motor cycles up to 2¼ h.p. resulted in a win for J. Thury (2 h.p. Moto-Rêve) in 1m. 43⅘s. J. Williams (2 h.p. Moto-Rêve) was second.

H. Jenkins (3½ h.p. T.T. Triumph), holder of the Amateur Motor Cycle Championship of Australia.

A two-mile scratch race for machines up to 4 h.p. was won by J. E. Yee (3½ h.p. Triumph), N. Saunders (3½ h.p. Bradbury) being second. Winner's time, 2m. 35⅖s.

In a scratch race for machines of 4 h.p. and over, distance two miles, H. Jenkins scored another win, the time again being 2m. 32⅖s. for two miles.

Motor Cycle Exhibition in Leicester.

From Wednesday to Saturday last week there was an exhibition of motor cycles at the Association Hall and Buildings, Leicester, and the attendance of visitors greatly exceeded anticipations. The show was representative and up-to-date, most of the leading models, which are familiar to our readers, being on view. The most imposing and attractive combinations were probably the four-cylinder T.A.C. and sidecar, the 7-9 h.p. V.S. and sidecar, and the 6 h.p. twin N.S.U. sidecar machine. Other motor cycles represented included the chain-driven P. and M., Corah-J.A.P.'s, Hobart, Triumph, Arno, Rex, Moto-Rêve, Wolf, Clyno, Excelsior, Kerry Abingdon, Indian, Clyde, and Royal Enfield. Accessories were shown by the Utopian Cycle Works, Clarke Bros., Paskells, Ltd., and Sutton and Co., whilst W. and A. Bates, Ltd., exhibited a full range of tyres. There is every prospect of this show, which is being organised by the local traders, increasing in interest and becoming a strong annual local enterprise. The first exhibition reflects much credit upon the organising secretary, H. E. Smith.

A Reply to Various Correspondents.

"C. W.," who recently wrote that he had seen a lightweight machine fitted with a change-speed gear perform wonders in hill-climbing in the neighbourhood of Bishop's Stortford, advises us that the gear is one of the old type Clément-Garrards.

A Prospective Competitor in 1910 Events.

J. Morris, of Retford, who won a silver medal in the last year's Six Days' Trials on a 3½ h.p. Bradbury, is unfortunately in the Sheffield Infirmary suffering from acute appendicitis. He writes that he is now going on splendidly, and hopes to be fit in time for the London-Edinburgh Run and the Six Days' Trial.

The Richmond Group.

A number of motor cyclists who attended the Richmond meeting have expressed a desire to procure a copy of the group photograph taken for *The Motor Cycle* in the Market Square. Any others who would like a copy may have one for 1s., either the 1909 or 1910 groups; 12in. by 10in. size, 2s. 6d. Envelopes containing applications for prints should be marked "Richmond Photo."

Exhibition in Birmingham.

On March 21st an exhibition was opened at Bingley Hall, Birmingham, called the National Trades and Industries Exhibition, and naturally motor cycles are represented there. On the stand of the Colmore depot, Colmore Row, Birmingham, are ten machines, three twin-cylinder Premiers, two single-cylinder Premiers, two Douglas, and three Royal Enfields. The exhibition will remain open until May 28th, and will doubtless be visited by many Midland motor cyclists.

nter-team Reliability Trial.

The competition between the Herts County A.C. and the North-West London M.C.C. to Harrogate and back was very keen, as proved by the close result (which, unfortunately, we are not at liberty to publish until approved by the committee). It is, however, known that the Herts County A.C. (Motor Cycle Section) are winners of the Service cup for the first year.

East Sussex M.C.C.

The opening run was to Bexhill, and was well attended. It is proposed to hold a sports meeting at a future date on Bexhill track. The club committee would be glad to arrange inter-meets with clubs in the neighbourhood.

Newcastle and District M.C.C.

On April 16th a slow hill-climb is to be held on Benton Bank (near Armstrong Bridge). There will be four classes, viz., singles, multi-cylinders, variable gears, and passenger machines—no entry fee. An enamelled bronze medal will be awarded to the winner of each class.

Edinburgh Waverley M.C.C.

The A.G.M. was held on the 23rd ult., when the office bearers for 1910 were elected. President, G. F. Hamilton; vice-president, G. W. Muirhead; captain, W. Sharp; secretary, R. H. Moodie. The members who had been successful in competitions were presented with the medals won in 1909, and the secretary announced that two additional medals and another trophy had been presented to the club.

Streatham and District M.C.C.

Mr. A. E. Bennett, A.M.I.A.E., A.M.I.E.E., has kindly consented to give a lecture on "Carburation" to the members at headquarters on Wednesday next at 8 p.m.

The club is holding its first hill-climb on Saturday, the 16th inst., and intending competitors are requested to apply for forms of entry without delay. There will be three classes—one for machines whose cylinder capacity does not exceed 500 cc., one for machines of over 500 cc. capacity, and one for passenger machines. A.C.U. formula will be used. Competitors will meet at the Clayton Arms, Godstone, at three o'clock, when the hill selected will be announced.

Birmingham M.C.C.

The above club held a very successful opening meet at Stratford-on-Avon on Saturday last. Some fifteen members started from Birmingham at intervals of a few minutes in order to avoid each other's dust, whilst other members joined the gathering at the Swan's Nest at Stratford. In all some thirty members and their friends partook of tea. For the benefit of new members and those who did not join in this meet, it is announced that an attendance prize will be awarded at the close of the season for the highest number of attendances at the Saturday runs. Motor cyclists wishing to join the club are requested to write to Mr. R. Vernon C. Brook, Oakdene, Cambridge Road, King's Heath, Birmingham, for full particulars. The run on Saturday is to Rose Hill (Lickeys), meet top Griffin's Hill 2.45 p.m.

Norwich and District M.C.C.

On Easter Monday the Norwich Motor Cycle Club held a 100 miles reliability trial for a cup presented by the president, Mr. Thorn. The result was: 1, Mr. Everard, Triumph; 2, Mr. Chapman, Triumph; 3, Mr. Brown, Triumph.

Westmoreland M.C.C.

A successful hill-climbing competition was held on Hucks Brown, on the road from Kendal to Shap. The course measured just short of 1½ miles. Fastest time was accomplished by W. Westwood on a 3½ h.p. Triumph; time, 2m. 8⅘s. The handicap was won by V. G. Blackburn (3½ h.p. Rex), W. Westwood (1909 Triumph) being second and R. Hutchinson (1910 Bradbury) third.

Edinburgh M.C.C.

During the past year the membership has doubled, and there are now about 100 members. Fixture lists for 1910 are now in the hands of members. On the 23rd inst. there is the opening run to Lauder, and on the Saturday following an open hill-climb has been arranged. The annual Scottish Five Days' Trial is fixed for June 6th to 10th. On June 18th a team will represent the club in the M.C.C. team trial at Daventry for *The Motor Cycle* challenge cup. Mr. R. J. Good is the new trials hon. sec.

Motor Cycling Club.

The next event in the club's active programme for 1910 is the members' hill-climb on Saturday, April 30th. The event will start at 4 p.m.; the weighing-in time is three o'clock. The start has been made as late as possible consistent with the carrying out of the event before darkness sets in, and it is hoped by this arrangement many more members will be able to compete. The event promises to be a good sporting affair, free from special machines. The venue of the hill is being kept secret until the last moment.

Southern M.C.

Those members not present at the A.G.M. will be pleased to hear that Lieut.-Col. Mark Mayhew has accepted the presidency of the club. The paper recently read by Mr. E. J. Harrison on "Carburation" caused so much discussion that the whole evening was given to it. In consequence of this Mr. Jones's paper on "Vulcanisation" will be read at a future date, due notice of which will be given.

A committee meeting is to be held at headquarters to-night (Thursday) at 8.30. Intending members should write Arthur J. Vickers, hon. sec., 42, Theatre Street, Lavender Hill, London, S.W.

At Stratford-on-Avon. The Birmingham M.C.C.'s opening run on Saturday last.

Club News.—

Ripon and District M.C.C.

There are now about twenty riding members in this club, which was only formed a month ago. The opening run was to Richmond (Yorks). Competitions and other runs will be arranged in order to make the club more interesting to its members. Riders in the district should write for particulars to the hon. sec., Fred W. Taylor, 14, Market Place, Ripon.

Hull (Kingston) M.C.

The opening run was to Richmond (Yorks) on Good Friday, and the club then commenced a three days' tour through the Lake District, finishing up at the Staxton Hill-climb, near Scarborough.

Bishop Auckland, Darlington, and District M.C.

Forty-four members of this club assembled at Piercebridge for the opening run to Richmond (Yorks), and later in the day rode up as far as Reeth.

Newport (Mon.) and District M.C.C.

The first run of this newly-formed club was to Hereford, where lunch was partaken of at the Mitre Hotel, and a most enjoyable day was spent.

Inaugural run of the Hull (Kingston) M.C. This newly formed organisation boasts 22 members.

Newcastle M.C.

This club held its opening meet at Belsay (Northumberland) on Good Friday, when about forty members assembled for luncheon at the Pavilion, Belsay. Afterwards a speed-judging competition was held on a six mile course on the Belsay-Ponteland Road. There were seventeen entries, and the results were: 1, Robt Rowntree (3½ h.p. Bradbury); 2, H. Mason (4½ h.p. Bercley and sidecar); 3, T. W. Hilton (3½ h.p. Bradbury); 4, J. Jones (7 h.p. Clyde); 5, J. S. Rees (2¾ h.p. Bradbury).

Hertfordshire County A.C. (Motor Cycle Section).

A members' hill-climb has been arranged for the 23rd inst. at Aston Hill. The following classes will be included. (1.) For members who own old-pattern machines only, and who have never won a prize in a hill-climb. No machine of a later date than 1907 will be allowed to compete in this class. (2.) Single-cylinder machines with fixed gears. (3.) Multi-cylinder machines with fixed gears. (4.) Variable speed class. (5.) Open to any class of machine, fastest time to win. All machines must be standard touring models except in class 5.

Western District M.C.

A flexibility hill-climb was recently held on Rectory Hill, Amersham. The event was run off in glorious weather, and proved popular with the members of this energetic club. The hill, although not exceptionally steep, was quite steep enough to bring failure to some of the competitors in the slow climb. The spirit of the competition was that a competitor could use any size engine and gear, but that the same gear was to be used in both the fast and slow climbs, the greatest difference between the times to decide the winner. Quite the best performance from the spectators' point of view was that of F. H. Mullett (3½ h.p. Triumph), and he deservedly proved the winner in his class. His handling of the machine was quite masterly as he went from side to side of the road with the engine running quite slowly. H. J. M. Hughes (5 h.p. V.S.), the club's sports secretary, proved a popular winner of Class II. An amusing incident was witnessed in the slow climb. W. F. Ritchie, on a 5 h.p. V.S., when about twenty yards from the finish called out in a cheery voice, "I'm not up yet." He was not destined to reach the top, for he almost immediately accidentally stopped his engine, which caused much merriment amongst the group at the finishing line. Mr. D. Steeves, on a 5 h.p. Indian, made fastest time of the day, but, unfortunately, failed in the slow climb.

Class III., for variable geared machines, was not run off, as there were not sufficient entries.

CLASS I.—Single-cylinders, any capacity.

	Competitor. Machine.	Fast climb.	Slow climb.
1.	F. H. Mullett (3½ Triumph) ...	28⅕s. ...	1m. 37⅕s.
2.	J. V. Armstrong (3½ Triumph) ...	27⅖s. ...	1m. 26⅘s.
	D. W. T. Holloway (3½ Triumph) ...	32⅘s. ...	Failed
	H. T. Crook (3½ N.S.U.)	31⅗s. ...	Failed
	H. H. Buckmaster (3½ Triumph) ...	32⅗s. ...	1m. 2⅖s.
	H. Vowler (3½ Triumph)	38⅕s. ...	0m. 56⅘s.

CLASS II.—Twin-cylinders, any capacity.

1.	H. J. M. Hughes (5 V.S.)	32⅖s. ...	1m. 43⅗s.
2.	L. E. Holloway (6 N.S.U.) ...	41⅘s. ...	1m. 50⅗s.
	C. H. Dobson (5 Rex)	Failed ...	——
	D. Steeves (5 Indian)	20⅕s. ...	Failed
	F. W. Ritchie (5 Indian)	25s. ...	Failed
	W. F. Ritchie (5 V.S.)	24⅘s. ...	Failed
	C. R. Taylor (5 Indian)	23⅗s. ...	Failed

Surrey M.C.C.

On the 10th inst. there is to be a club run to Brighton, leaving headquarters at 10 a.m.

Assembly on the occasion of the first run of the Newport (Mon.) and Dist. M.C.C. Hereford was the destination.

AMERICAN RELIABILITY TRIAL.

THE third annual endurance run of the New Jersey Motor Cycle Club, sanctioned by the F.A.M., will take place on May 29th and 30th. Readers of *The Motor Cycle* may doubtless like to peruse the regulations for an American reliability trial; we accordingly publish below extracts from the programme.

Classes 1 and 2.—Private owners' and trade riders' classes as defined by the F.A.M. rules.

Class 3.—Passenger class includes sidecars, tricars, tandems, etc. Passengers must weigh 110 lbs. or over.

Class 4.—Ladies' invitation class. No entrance fee. Any lady finishing the entire course, either passenger or individual rider, will receive a special medal. No time limit.

Gold medals will be awarded for scores of 1,000 points; silver medals for 980 points and over; bronze medals for 950 points and over.

For failure to adhere to schedule the following penalties will be imposed: One point for each minute late at any control; two points for each minute in advance of schedule; thirty minutes in advance shall entail disqualification.

There will be a hill-climbing test at Cushmall Hill. At this hill (near Singac) riders will be required to register, but no time will be taken, although consistent running time will count in case of ties for special cups, etc.

When nearing foot of the grade selected for the hill-climbing test, competitors shall dismount and, in the order of their arrival, undergo the hill-climbing test by making the ascent of the hill without regard to time, but under the observation of officials stationed thereon.

Penalties will be imposed at the hill as follows: Single-cylinder machines—25 points for dismounting, 10 points for making the ascent with pedalling assistance. Multi-cylinder machines—50 points for dismounting, 25 points for pedalling. *Two-speed geared machines in their respective cylinder classes will receive double the above penalties.* (The italics are ours.)

Speed limit in State of New Jersey is 25 m.p.h. Average speed first day, 17 m.p.h. Average speed second day, 15 m.p.h to Monroe and 17 m.p.h. from there to Newark.

Riders may check controls five minutes earlier or later than schedule, without penalty.

No repairs or adjustments allowed in controls until after rider has checked.

Riders coming within sight of control must continue to control and check in. Riders failing to comply with this rule shall immediately be disqualified.

At Philipsburg machines will be locked up over night, and owners cannot have access to them until 5.30 o'clock the next morning. Six o'clock starting time.

The total distance is 353 miles.

Geoffrey W. Liddle (with Mrs. Liddle), of Middlesbrough, organiser of the Richmond conference, with the youngest motor cyclist at the meeting The machine is a two-speed V.S.

"THE LION AND THE LAMB."

A title suggested for this photograph by our Northern representative. From left to right: F. Straight (A.C.U. secretary), Jas. R. Kelly (Leeds M.C.C.), and Felix Scriven (Bradford M.C.C.), at the Inter-club Hill-climb at Sutton Bank.

THE NORTHERN LEAGUE OF MOTOR CYCLE CLUBS.

The following letter has been addressed to Mr. F. Straight, secretary of the A.C.U., by Mr. Felix Scriven, Bradford Motor Cycle Club: "Referring to our conversation which took place at Sutton Bank on the 26th of last month, I herewith beg to make the following suggestion, which I trust you will put before your committee. Having been present at the conference of the Northern League of Motor Cycle Clubs at Richmond on Good Friday last, I am of the opinion that some agreement should be come to between the League aforementioned and the A.C.U. I would suggest that a conference be convened at which one or more representatives of the A.C.U. should meet the secretaries of the Northern clubs concerned, and that the conference should consider the advisability of the clubs forming the League being affiliated to the A.C.U. for a lump sum, instead of so much per head, on the same lines as the North-eastern Automobile Association has been admitted. I trust that your committee will see their way favourably to consider the above."

FUTURE EVENTS.

April 13th (Wednesday).—B.M.C.R.C. Race Meeting at Brooklands.
,, 20th.—A.C.U. Second Quarterly Trial—Uxbridge to Banbury and back.
,, 27th-28th.—Brooklands A.R.C. Meeting.
,, 30th.—M.C.C. Members' Hill-climb.
May 4th.—B.M.C.R. Meeting at Brooklands.
,, 4th.—Herts County A.C. (motor cycle section) Open Hill-climb.
,, 13th, 14th, and 16th (Whitsun).—M.C.C. London-Edinburgh and London-Edinburgh and back Runs.
,, 26th (Thursday).—International Motor Cycle T.T. Race in the Isle of Man.
,, 27th.—Open Hill-climb in the Isle of Man.
June 18th.—M.C.C. Team Trial for *The Motor Cycle* Challenge Cup. Competing teams: Motor Cycling Club (holders), Coventry and Warwickshire M.C., Bristol B. and M.C., Streatham and District M.C., Sutton Coldfield A.C., and Edinburgh M.C.C.
,, 25th.—Bradford M.C.C. Open Hill-climb.
July 4th-9th.—A.C.U. Six Days' End-to-end Trials.

Messrs. Mann, Egerton, and Co., Ltd., of Norwich, have been appointed agents for the sale of Premier motor cycles throughout the whole of Norfolk with the exception of Thetford and Diss.

WHERE TO GO AT WHITSUNTIDE: NO. I

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Military Motor Cycling.

[4682.]—I send in my name as one willing to join a military body, but not altogether at my own expense.

Congratulations on Thursday publication.

ARTHUR JNO. STROUTS.

A Hint to Advertisers of Second-hand Machines.

[4683.]—The shortsightedness of advertisers in not giving full particulars of the articles they offer for sale is much to be regretted. What offers? Nearest offer. Seen here. No ignition mentioned, nor date. Belt offered, no size nor length; and so on.

W. H. PASSMORE.

Our New Publishing Day.

[4684.]—Please accept, both to yourself and your staff, my heartiest congratulations on the result of your referendum. I am particularly pleased with the fact that Sunday work will be avoided. You may count on me as a regular subscriber to your useful and interesting paper.

C. A. ELLIOT.

[Numerous letters in much the same strain as the above continue to reach us.—ED.]

Auxiliary Exhaust Release Ports.

[4685.]—I notice in letter 4659, in your issue of March 21st, Mr. Gasston, jun., has something to say on the above subject. Your readers may be interested to know that I have three ⅜in. holes in the front of my cylinder with a 1in. copper pipe to lead the exhaust gas into the silencer. My conclusions are that they very much increase the power, especially over long distances of speed, that they lower the petrol consumption, that the engine is appreciably more powerful at slow speed, and keeps cooler, and runs with less vibration. Other details are that the exhaust valve does not scale at all, and that a out one-third more lubricating oil is necessary to compensate for that lost through the holes. As to the holes being open to the crankcase at the top of the stroke, I avoided this by having my new piston made with a lip on it, and a corresponding piece cut out of the baffle plate in the crankcase. The ports certainly have no disadvantage, excepting the loss of oil, and a lot of this can be avoided by oiling a little at a time and often.

HAROLD KARSLAKE.

[4686.]—It may be of interest to many to know that I have fitted my 1905 3½ h.p. Rex with an auxiliary exhaust port with every success. The engine hauled a sidecar with passenger and luggage, total load inclusive 5 cwt. 14 lbs., fixed drive (belt), gear 5½ to 1.

Since fitting the exhaust release port the engine has gone about its business with ease and grace, will run slowly (four miles per hour), and how fast I do not care to try, as 20 m.p.h. is plenty for me with a sidecar. Engine keeps cooler, does not require more oil or gas, runs more smoothly, but requires more silencing.

The port has a ½in. bore, and is completely uncovered ⅛in. before piston has reached end of firing stroke. It is placed between the two valves, and has a separate exhaust pipe to silencer. I am not troubled with a smoky exhaust.

W. H. MUSKETT.

Finish for All-weather Machines.

[4687.]—Following the correspondence on "Finish for All-weather Machines," and noticing that Mr. A. Dean [4629] wants to know how to make aluminium paint more permanent, I gladly address you this letter just to let him and the "many others" he suggests know of a hint which I trust he will find of good service.

Once the old enamel has been completely scraped off, he should apply first one or two coats of boiled linseed oil to which he may add a small quantity of white or black enamel to enable him to see that an equally thin coat is given. When perfectly dry, any kind of enamel, not stoved, French grey, or aluminium paint, applied upon the oil surface, will be found to wear exceedingly well, standing vibration and even light hammering without coming off.

I must thank you for the good advice and many hints I have read in *The Motor Cycle*.

JUAN L. DE CASTRO.

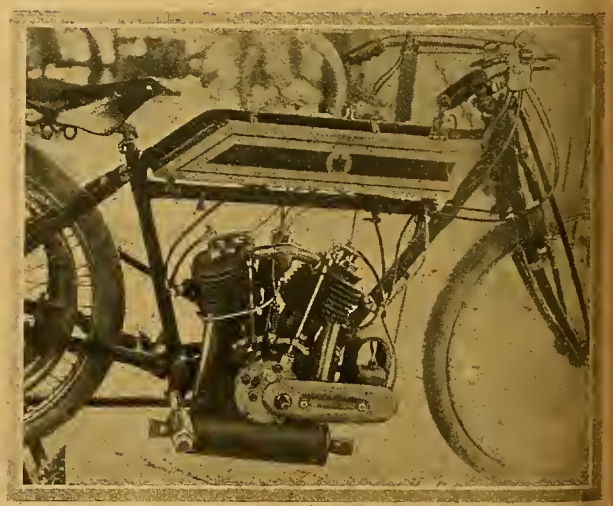
Spain.

Lightweights v. Heavyweights.

[4688.]—I have been much interested in the discussion of the advantages of lightweights over heavyweights. I have tried both, and am of the opinion that the latter are infinitely preferable.

Last year I spent part of my summer holiday touring on a 2 h.p., and lived to regret it. On any stiff hill of moderate length I had to pedal hard, and as there were many very stiff climbs (for I was touring in the Lake District) my task was not an easy one. And when, finally, the near pedal broke off and disappeared into the ditch, I determined that lightweights and I should part for ever.

I now have a 10 h.p., which when equipped for touring, but without rider or luggage, weighs close on 3 cwts. It starts easily, and is exceedingly comfortable to ride. It is a positive pleasure to meet a really steep hill. Belts are expensive, but that is made up for in tyres, with which I have never had any trouble, either with punctures or sideslips, although I use 2½in. smooth treaded Clinchers and ride in all weathers, wet and fine. Another great advantage in a heavy twin is its capability to take plenty of luggage, and so overcome the nuisance of sending on luggage in advance.



A new pattern Rex twin-cylinder engine was referred to in our Brooklands report last week. It is illustrated above. The cylinders measure 77½ × 71 mm., and overhead mechanically operated inlet valves are used. These extremely fast engines will be used in the Tourist Trophy Race next month, and chain transmission may also be fitted.

I think, if this meets the eye of a certain motor cyclist whom I met one dark, wet night, gloomily preparing to push his machine four miles to the nearest railway station, and who, with the help of a length of rope, arrived there fifteen minutes later, he will agree with me when I say, "Give me a heavyweight and powerful twin."

TWELVE STONE.

Road Dangers at Night.

[4689.]—One hears so much about road dangers at night that I think the following tip of having two burners in the lamp instead of one may be worth knowing. I think that if some burner manufacturers made an article something like the one illustrated it would have a ready sale.

LARGE LIGHT.

Wear of Canvas and Rubber Belts.

[4690.]—In December last I bought a canvas and rubber motor cycle belt. After 200 miles it came to pieces and I sent it to the makers. After examination they offered to supply a new one for 5s. This, as I pointed out, would have been a reasonable offer if it had run one-third its normal life, the original cost having been some 15s. I offered 2s. 6d. to settle the matter, as I calculated that if letting the engine fire till you have begun to master the tendency to drive into the hedge. When this stage of proficiency has been reached you may drop the valve lifter and allow the engine to do its own work for a short distance, raising the valve again whenever a "wobble" appears imminent. If you try to mount with the engine started you may overturn the whole combination, as I did at my first attempt, or if you succeed in mounting you will most likely charge the nearest lamp post, as a friend of mine did. Steering down hill with exhaust valve lifted is the only safe way, and will make anyone proficient in a very short time.

Rubber belts, however efficient on a "solo" machine, are a perfect nuisance on a powerful twin with sidecar. Of course, if one's pulleys were always perfectly true (but whose are?), a new rubber belt might do well for a time; but I find that the life of rubber belts is short on a passenger machine compared with that of a good leather belt. Personally, I have found complete satisfaction in a Phänomen girder belt (three-ply chrome leather with steel girders between the two lowest plies). The Phänomen costs no more than a good rubber belt, and never requires to be dressed—two great advantages over some other popular leather belts. I have often used it to convey heavy passengers in a very hilly border district, with a single-geared 5-6 h.p. twin and Millford sidecar, and it has never pulled through in 2,000 miles, though it has broken some of the

M.C.C. JARROTT CUP COMPETITION AT EASTER.

A secret checking station at Yeovil. The rider is F. Smith (5 h.p. Clyno).

An incident near Honiton, snapped from the seat of a car following. It may be of interest to know that this photograph was taken through the wind screen.

Stanley Webb (1910 Triumph) negotiating the unrolled stones near Land's End. These stones unfortunately unseated several of the competitors

,000 miles were its normal life, and it had only run 200, a ayment of one-twentieth of its cost would meet the case. This offer was refused.)

Putting this before the makers, they say 3,000 miles is n average life. I accept this estimate as being more accuate than my own. They say the belt has been in stock a ear, and attribute its failure to that fact. Granting that a elt deteriorates by being kept, is it not reasonable to sug- est that the makers should warn intending purchasers not o buy their belts without a guarantee that they are fresh tock?

Kodak photographic films, for instance, have a notice ttached that they are not to be used after a certain date, o that buyers are safeguarded against buying worthless tock. I suggest that some such notice should be attached o belts which deteriorate by being kept, as it is an absurd lemand for makers to insist on payment of one-third cost rice for worthless belts which fail after running only one- ifteenth their normal life. H. S. PHILLIPS.

Sidecars, Belts, and Other Matters.

[4691.]—The best way to learn to steer a rigid sidecar s as follows: Get a friend who can steer it to drive you s a passenger to some place where there is a moderately teep and long down gradient. Arrived at the top, your riend and you change places. He takes the sidecar seat, ou sit upon the bicycle, have exhaust valve, and steer he combination down as of this type if necessary, but not strongest fasteners made. I don't suppose I shall ever manage to break this belt, and I am sure it is good for twice 2,000 miles.

All leather belts, however, are great pulley grinders unless one keeps them scrupulously clean. But, after all, "truing up" does not cost more than a shilling, while even a new pulley is cheaper than a new belt.

Another disadvantage of the leather belt is that one often has to use it tighter than a rubber one, which will cause more wear in course of time at the engine axle bushing.

Automatic inlet valves on a twin should not be allowed to open more than $\frac{1}{8}$th of an inch. A thin washer or two slipped over the valve stem, above the guide, inside the spring, will cure a good deal of the unsatisfactory running that occurs with automatic inlet valve engines after a prolonged period of wear. "Ixion" and the other people who have been complaining lately about wasteful blow-backs of petrol through the air inlet should turn their attention to the lift of their automatic inlet valve, and reduce the space of possible opening to $\frac{1}{8}$th inch where they find it exceeds that. They will lose less petrol through the carburetter air holes after they have attended to this simple point.

May I be allowed to correct a minor point in your reply to "W.G.A." in a recent issue? The Whittle belt is made $1\frac{1}{4}$in. broad, and I believe even of larger sizes to order.

Wishing long life to your most useful and interesting paper, (Rev.) J. GORDON.

Automatic Carburetters.

[4692.]—Whilst I agree with many of "Ixion's" remarks in the last issue on the subject of automatic carburetters with single lever control I should like to take exception to his comparisons between the carburetters fitted to cars and those fitted to motor cycles.

Whilst the automatic carburetter will give first-class results on a car engine which is run at practically a constant speed, it is no argument to say that the same results would be obtained if it were fitted to the motor cycle engine, which, through it not having a train of gears, has to run at all speeds from 200 to 3,000 or more revolutions a minute in order to meet the varying conditions constantly met with on the road.

The average motor cyclist strives after the absolute efficiency of his engine to a much greater extent than does the car owner, simply because he desires the smallest, lightest, and handiest vehicle that will take him up hill and down dale without having to resort to pedalling and other means of assisting his machine, and such being the case the form of carburetter that will give the greatest efficiency must always be the most popular one in spite of the extra "tap twiddling" that has to be resorted to.

HOWARD SMITH.

American Records.

[4693.]—I was greatly amused to read the letter of your Toronto correspondent in the issue of February 21st, who signed himself "Another Colonial." If he be a colonial he is evidently not a disinterested one, and is probably concerned in the handling of some American machine. As an amateur I protest against the fallacies of this individual. "Another Colonial" must think we are all fools. His letter

Inter-team Trial to Harrogate and back. At the George Hotel, Grantham, during the luncheon interval on the outward journey.

is rash and childish, and he seems to have his nerve with him when he says "we Canadians."

We give Peary the credit of reaching the Pole. Did America wait for verification of Cook's story? Oh, yes! And did he receive no reception in the States? Oh, no! If America did want verification, why should one man be treated better than another, or are the Americans still doubting Peary's story too?

I trust the big 7 h.p. Indian will meet with the success it deserves during the coming season. American motor cycles will not drive English machines from the track, or beat "all creation," as your correspondent would have us believe. I fully appreciate the merits of the Indian motor cycle, but before purchasing my present English mount—which is not my first—I saw many machines, English, Continental, and American, amongst them the Indian, on the streets of Toronto.

I am very pleased to see that in England "American hot air" does not go. Watch American records, and American stories—believe me they need it. It was but last week that I heard of an American automobile that made seventy-five miles per hour for twenty-four hours. Look out for your laurels, Mr. S. F. Edge. It is not infrequent to read in the press of the fastest mile ever accomplished—the one done in Florida by Curtiss on a motor cycle in twenty-six and a fraction seconds. Strange to say, Americans believe these stories.

In reply to our colonial friend's question, why English firms do not send racing machines to America, I would point out that as the duty into U.S. on motor vehicles is almost fifty per cent., the advantage, therefore, in favour of the Hendee people is considerable.

We have all formed our opinion of "Colonial's" reference to British prestige. The Empire has lived a long time, and if it continues to do in the future as well as it has done in the past we shall be satisfied.

Touching the remarks of another correspondent, I might say that English belts in Canada are not afflicted with "galloping consumption," as we are told they are in the south. Like all English productions they are first-class, "all wool and a yard wide." CANADIAN.

Winnipeg, Canada.

The Steering of Sidecars.

[4694.]—I have been much interested in the recent correspondence on the "steering of sidecars." It surprised me to find that so many riders of sidecar combinations experience a side pull on the handles, some when proceeding in a straight line, others when turning corners.

As I have never experienced this trouble during the two years I have driven my sidecar, I thought it sufficiently interesting to find out the reason. Assuming the sidecar to be on the left hand side of the bicycle, I proceeded to reason as follows:

Disregarding the front wheel for a moment, what would happen if the two back wheels were free to move at their own sweet will? The driven wheel of the cycle would at once turn to the left and continue to circle around the idle wheel of the sidecar. Hence there must be a continual pull to the left on the head of the machine, and also on the front wheel.

What condition must be fulfilled in order that this pull shall not affect the steering, or shall not pull the handlebars round? It is that the centre line of the stem of the front fork shall, when produced, pass through the point of contact of the front wheel with the ground. This is necessary to prevent any castor wheel-like movement on the part of the front wheel.

This was my reasoning, and I found that my machine exactly satisfied the above condition. I may mention also that the spindles of my back wheels are in the same straight line and the wheels are set parallel to each other, as so clearly described by Mr. J. H. Lester. This is necessary for easy steering round corners, and to avoid undue wear on back tyres.

If Mr. Herbert Porter can arrange his wheele as I have described I am sure he will much appreciate the easy steering and longer life of tyres resulting therefrom. O.J.P.

SUMMARY OF CORRESPONDENCE.

"FE 523" wishes to point out to readers the kind treatment he received at the hands of Meeson Bros., Wormley, Herts. He says: "I requested a gallon of spirit, with which I was duly supplied, by their breaking open a two-gallon can. Whilst pouring it in the tank they informed me they had no licence at present to sell spirit, but rather than inconvenience me they preferred to give it to me."

EXPERIENCES WANTED.

"Patent" (Bristol) is anxious for users' experiences and opinions of the Lowen two-wheeled sidecar.

"Dr. W." would like readers' experiences with the 4-5 h.p. Norton with or without sidecar, and also the Bramson rear-car.

A REMINDER.

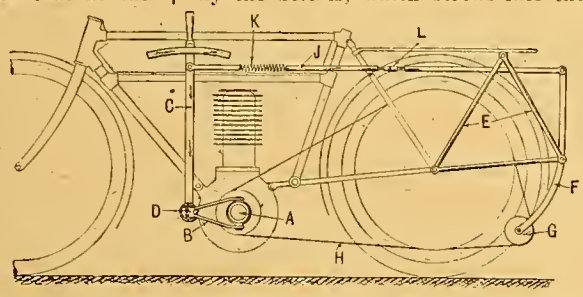
We would like to remind readers that every letter [illegible] *Motor Cycle* requiring an answer must be [illegible] and addressed envelope. Readers [illegible] and mechanical others must always send [illegible] engines will be [illegible] chain transmission [illegible]

RECENT PATENTS.

By ERIC W. WALFORD F.C.I.P.A.

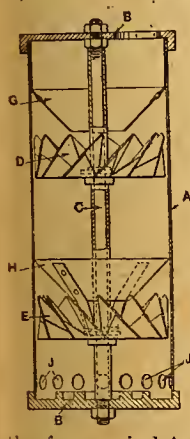
A Belt Tensioning Device.

The construction illustrated is intended for use with expanding pulley gears, and is so arranged that as the lever is moved to vary the effective diameter of the pulley it automatically operates a jockey pulley, whereby the belt is maintained at its correct tension. Adjustment of the pulley A is effected by a fork B actuated by the operating lever C through bevel gearing D. Mounted at the rear of the machine is a structure E, which forms the pivot for a rocking arm F carrying the jockey pulley G which engages the belt H. The other end of the rocking arm F is connected to the operating lever C by a rod J, in which is inserted a spring K to afford a resilient action, and the length of which may be adjusted by a right and left-hand screw device L. Thus as the lever is moved to lower the gear the rocking arm and jockey pulley are simultaneously moved to take up the slack of the belt, and *vice versâ*.—T. R. S. Kynnersley, No. 9,646, 1909.



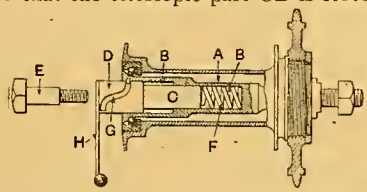
An Exhaust Silencer.

Elimination of back pressure is the object aimed at by this construction, which comprises a cylindrical casing A, mounted between end plates B, secured upon a spindle C. Mounted upon the spindle C are two fans D E, which have their blades set in opposite directions. These fans are retained in their correct positions by distance pieces F mounted around the spindle C. A clearance is left between the peripheries of the fans and the interior of the casing A, and to prevent the exhaust gases passing directly around the fans conical baffles G H are used, which deflect the gases to the centres of the fans. The usual outlet holes are provided at J.—T. Brooks, No. 14,608, 1909.



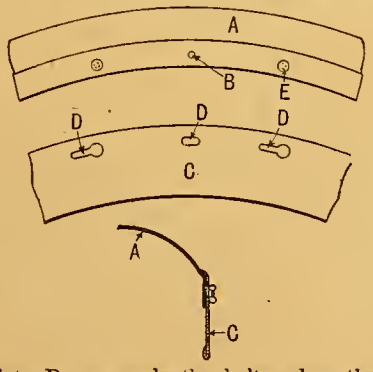
To Facilitate Tyre Removal.

The changing of tubes and covers on motor cycles is rendered difficult by the fact that the tyre parts cannot be completely removed from the wheel owing to the presence of the fork. A few constructions have from time to time been produced whereby the tyre can be completely removed without removing the rear wheel. These constructions involve a collapsable or two-part wheel spindle, and the construction under consideration is of this type. The major portion A of the spindle is bored out at B, and the part C D telescopes in it. The spindle is completed by the bolt E, which screws into the part D. The part C D is held outwards by the spring F, and a helical groove G is formed in the part C, this being engaged by a projection carried by the spindle part A. A lever H is attached to the part D to enable it to be rotated. To remove the tyre or tube, the bolt E is slacked off, and the lever H rotated so that the telescopic part CD is forced back into the part A. A gap is now left between the end of the spindle and the fork end allowing the tyre to be removed. At these times the wheel is only supported on one side so that the parts have to be restored to their normal position immediately.—A. J. Ginestes, No. 25,750, 1909.



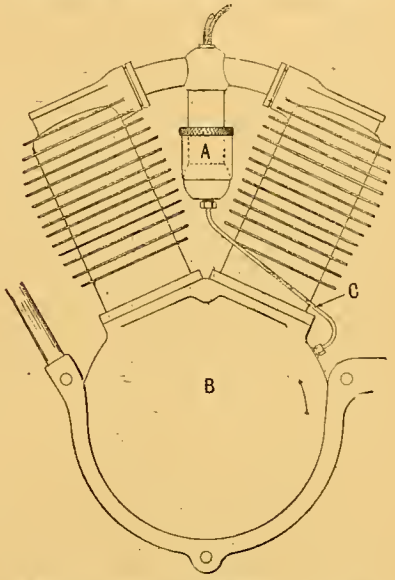
Mudguard Extensions.

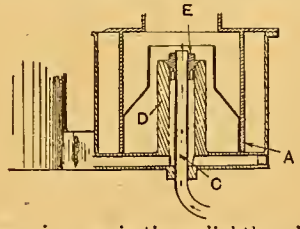
The mudguard A is provided with a number of studs B, and an extension piece or flange C is fixed to the mudguard by these when required. The extension piece is formed with slots D of a special shape to drop over the studs and over the bolts E. When in position the flange is moved lengthwise, so that the narrow part of the slots D surrounds the bolts when the nuts on the bolts are tightened up. A deep side flange is thus detachably fixed to the guard when required.—F. T. Jackson, No. 2,429, 1909.



Lubrication and Carburation.

Each combustible charge taken into the cylinder is accompanied by a small quantity of oily vapour drawn from the crankcase *viâ* the carburetter. The carburetter A is put into communication with the interior of the crankcase B by means of a pipe C. Several methods of connecting the pipe C to the carburetter are shown in the specification, but in that illustrated a jet D of the Longuemare type is bored out to receive it, the end E of the pipe projecting slightly above the level of the jet D.—Rex Motor Mfg. Co., Ltd., and H. Sarginson, No. 16,511, 1909.





One of the most important stands at the recent Aero Exhibition was that on which Green's engines were shown. If one looked very hard for it a water-cooled motor cycle cylinder was to be seen, and a conversation with Mr. Green, the clever inventor, made it clear that he was by no means likely to neglect its manufacture. Several standard makes of machines can be fitted with the engine without difficulty. Mr. Green assures us that on all sides the cylinders have given the greatest satisfaction, and he is thoroughly convinced that the water-cooled motor bicycle will soon become popular. He is now giving the matter his serious attention, and in the near future we shall probably hear more of water-cooled motor cycle engines.

Agencies Wanted in Eastbourne.

Motor cycle manufacturers who are on the look-out for an agent in Eastbourne should send lists and particulars to Mr. V. Yates, Motor Cycle Exchange, Cavendish Place, East bourne.

An Appointment Wanted.

Mr. G. Holland, who for over thirty years was with the Singer Cycle Company, and represented their interests in London, is at liberty for a fresh engagement. Communications should be addressed to him at 5, Queen's Club Terrace, West Kensington, W.

Second-hand Machines.

The Moto-Rêve Co., Ltd., 183, Acton Vale, W., have several 1908 and 1909 second-hand Moto-Rêve models for sale at various prices which have been taken in exchange for newer mounts. These machines may be examined and trials arranged at the above address.

The Advance in Rubber.

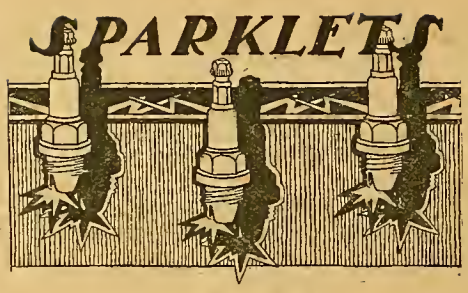
Owing to the continued advance in the price of raw indiarubber, the Rich Detachable Air Tube Co., Crawley, have slightly increased the price of all sizes of detachable air tubes.

A New London Firm.

Mr. H. Taylor, who was for twelve years with the Service Co., Ltd., has taken premises at 21, Store Street, Tottenham Court Road, lately occupied by Horner and Co., and will there deal in complete motor cycles of the best known makes, and all types of accessories, while business will be done in exchanges and on the extended payments system. The firm will be known as H. Taylor and Co.

The Class D Fifty Miles' Record.

When C. E. Bennett brought the Class D fifty miles record down to 49m. 55⅖s. on March 16th at Brooklands, he was using Shell motor spirit, whose purity and regular vaporisation are greatly appreciated by motor cyclists.



A Good Opening.

We know of a good opening for a keen motor cyclist who is capable of taking over the management of an old-established business dealing in complete motor cycles and accessories. Capital is not essential, but preference would be given to applicants prepared to take a financial interest in the business, and for whom a seat on the board of directors would be provided. Letters addressed to "Keen Motor Cyclist," c/o the Editor, *The Motor Cycle*, will be forwarded to the right quarter.

Catalogues Received.

Messrs. Alfred Dunhill, Ltd., 359-361, Euston Road, N.W., are seriously taking up the question of equipment for motor cyclists, and have now published a special motor cycle catalogue, which will be sent to readers upon application. This catalogue not only deals with motor cycle clothing, but it also lists almost every motor cycle accessory known.

The Lloyd Motor and Engineering Co. have just issued a complete 1910 catalogue illustrating and describing most of the L.M.C. improvements. Special pages are devoted to descriptions of the Auto-varia pulley and free engine device, the pedal-operating exhaust lifter, the double lamp bracket, etc. Two views of the workshops in which the L.M.C. motor cycles are made are also included, and a number of testimonials from satisfied purchasers. Copies can be obtained from the Lloyd Motor and Engineering Co., 132, Monument Road, Birmingham.

A Profusely Illustrated Booklet.

Brown Bros., Ltd., have issued an interesting booklet to mark the majority attained by the firm. It is the biography of a big business, and, indeed, the immense proportions to which the business has grown will come as an eye-opener to many on perusing the booklet. All the different departments are depicted in illustrations, and there is very little reading to tire the reader. Copies are obtainable from Brown Bros., Ltd., 22 to 34, Great Eastern Street, E.C.

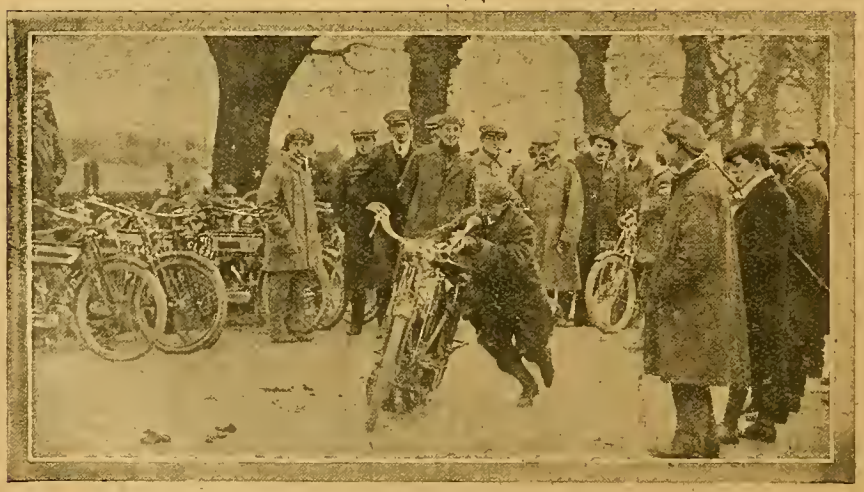
Touring Equipment.

The 1910 catalogue of Brooks motor cycle saddles, tool-bags, touring bags, etc., has just reached us. Like all things turned out by this firm, the catalogue is representative of the best style and quality of printing. It includes excellent illustrations and descriptions of such articles as the B104 motor cycle saddle, with backrest, which we illustrate. Practically every possible type of tool-bag is included for attachment to carrier, saddle, or frame. Brooks touring bags, particularly the latest type with removable inside cases, are splendidly designed for the purpose for which they are required. The firm also make spare belt and tube cases, and for those who require them tool and touring bags can both be supplied with good locks and keys. Copies of the catalogue can be obtained on application to J. B. Brooks and Co., Ltd., Great Charles Street, Birmingham.

Brooks B104 saddle with backrest.

"Continental" Items.

We have received from the Continental Tyre and Rubber Co., Clerkenwell Road, E.C., four different sections of their well-known rubber motor cycle belts, grooved pattern. These belts are considerably improved in construction, and the grooves are much deeper than previously. Continental belts are made in the following sizes: 1in., ⅞in., ¾in., and ⅝in. Arrangements have been made by the company to retread motor cycle covers of any make, with rubber non-skid treads at their Willesden works. All work entrusted to them will be carried out in a similar style to their motor car tyre repairs, for which they are justly famous. All goods should be plainly addressed to the repair works, Hythe Road, Willesden. By the way, Harry Martin was using Continental motor cycle tyres when he won the Easter motor cycle handicap at Brooklands on March 28th.



Scene at the start of the Norwich and District M.C.C. reliability trial for the President's Cup. A competitor on a 1910 Ariel pushing off. (See Club News pages.)

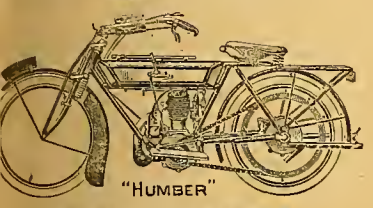
WARNING!

n't pay £48 for a gearless machine. Until our stock hausted, we will supply a brand new 1909½ **TWO ED HUMBER** and **CORONET SIDECAR** for **£42 10s.** usual price being £55, we show a clear saving of os. Goods bought right are half sold, and we have ly got through half of these "combinations." The ion is, how long will the other half remain unsold give you our solemn warning, the **end is near,** and opportunity of securing value to the extent of

£55 for £42 10s.

e gone. The quality and finish of these Humbers perb. Remember, one turn of the handle sets this iful machinery in motion; a slight pressure from foot puts the noiseless gear in operation; the "com-ion" moves gracefully away, leaving the "gaping" l amazed; "marvellous" is on every tongue.

£54 7 6. for £42 10 0.

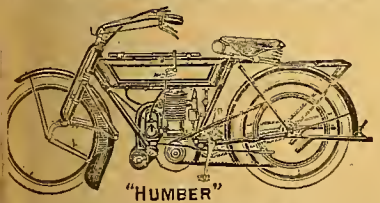


1909½ HUMBERS

d new. These you can hardly tell from 1910 models, fitted with improved pattern silencers, spring forks, r pulleys. Roc licensed two-speed gear, h.-b. control, tered tank, high tension magnetos, Dunlop tyres, oil operated by foot, stand and carrier, toolbag with ols fitted to handle-bar. Fully guaranteed.

£42 10s., complete with sidecar.
£38 10s., less sidecar.

1909½ Single Speed Humbers.



TEN ONLY ..... **£34 10s.** each.
id spring forks, Bosch magnetos, h.-b. control, pedal-ar, stand and carrier, toolbags, tools, number-plates. Usual price £45. A clear saving of £11 10s. Only 's can offer such value.

NEW 1909 ARNOS.

have a few Brand New 3½ h.p. Models, fitted with tos, h.-b. control, complete with stand, etc. price £45. Our price, **£28 10s.** Or exchange.

Other Sidecar Machines.

STEVENS Tricycle, two wheels in front..	£11 10
BROWN twin, 1908 magneto free engine ..	£25 10
REX DE LUXE, Roc clutch, magneto..	£21 10
Twin REX, 1908, magneto, spring forks..	£24 10
HUMBER, 1909, two speeds, soiled only	£28 10
BAT, magneto, two speeds, spring frame..	£24 10

Beautiful Solo Mounts.

TRIUMPH, magneto, etc., 1909	£35 0
TRIUMPH, 1908, Mabon free engine	£30 0
TRIUMPH, 1907, in splendid condition ..	£25 0
DOUGLAS, 1909, studded tyres, like new	£27 10
REX 1909 tourist soiled only	£ 8
MOTO-REVE, 1908, nice order	£18 10
MINERVA, mag., enamelled French grey	£19 10
MINERVA, magneto, splendid condition..	£13 10
N.S.U., magneto, 2¼in. tyres, low built ..	£18 10
BRADBURY, 1909 model.....	£28 10
Twin REX, with Forecar	£16 10
MINERVA, spray, good running order ..	£3 15

BIG CASH DISCOUNTS.

BOOTH'S MOTORIES,
CHARLES STREET, off Square Road,
Tele 1062. **HALIFAX.** 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

ROYAL Enfield, 1910 model (new), 2-cyl., lightweight, just delivered from works; no fault; other reason for selling; 32 guineas.—Oolby, Batley.

1910 (few weeks old) Triumph; 38 guineas; will exchange for 1910 twin Douglas and cash.—Whittaker, 63, Union Rd., Oswaldtwistle, Lancashire.

3½h.p. N.S.U., magneto, late 1907, 1in. belt, 26in. by 2¼in. wheels, accessories, machine and engine very good condition; £16.—Clark, Green Lane, Spennymoor.

3h.p. Motor Cycle for sale, condition as new, 1909 fittings throughout; any trial given by appointment; bargain for quick sale.—Apply, 350, St. Helens Rd., Daubhill, Bolton.

LIVERPOOL.—Motosacoche, Moto-Reve, Wolf, the only veritable lightweights; Phelon and Moore heavy and light.—Sole official agents, British Cycle Co., 1, and 3, Berry St.

LATE 1909 Twin Tourist Rex, magneto, spring forks, cantilever seat, etc., equal to new, very fast and reliable; bargain, £28; only wants seeing.—Stanley Motor Garage, Westbrook St., Bolton.

TRIUMPHS, immediate delivery, come and see me before purchasing your 1910 mount, any make supplied; second-hand Triumphs taken in part payment.—Triumph Agent, 53, Trafford Rd., Salford.

SOUTHPORT.—5-6h.p. Twin Rex, engine perfect, reassembled 1910, Palmer cord back, Continental front, h.b. control, finished French grey, with blue panels, a flier; £23 10s.; seen after 5 p.m.—50, Duke St.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

TRIUMPH, 1909, equal to new, with lamp and spares; £39.—Bradford House, Cradley Heath.

REX Lightweight, magneto, new November, 1909, h.b. control; £16 10s. cash, no offers.—Graham, Spring Rd., Wrexham.

PHELON and Moore, 3½h.p., 1910 model, due from makers next week, with sidecar, nicely upholstered, wicker body; £65, or near offer.—Moss, Wem.

TRIUMPH, 3½h.p., September, 1908, perfect order, £32; Quadrant, 3½h.p., 1908, h.b. control, splendid condition, £18.—Lawrence, Lichfield Rd., Bloxwich.

N.S.U., 3h.p., just overhauled, good condition, two accumulators, lamp, horn, and all accessories, R.O.M. non-skid on back; £12.—Cope, Foxleigh, Wem.

1909 5-6h.p. 4-Cyl. F.N., pannier bags, h.b. control, practically new, ridden under 500 miles; quick sale, £30; no offers; any trial.—Deane, Matlock Bath, Derbyshire.

1909 Triumph, perfect order, most carefully kept, studded Clinchers, Dermatine, tools, spares, horn; buying 1910; 35 guineas for quick sale.—Vickers, Offley, Newport, Salop.

TRIUMPH, 1908, overhauled by makers, 1909 piston and fittings, Palmer cord tyres, everything complete, spare new belt, two valves, plug, guaranteed perfect; £30.—17, Cramer St., Stafford.

8h.p. Twin Minerva, spring forks, very low, controlled from handle-bar, equal to new, not soiled, guaranteed perfect; approval; 27 guineas, or lower power with cash.—Hallam, 1, Baths, George St., Buxton.

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

3h.p. Lincoln Elk, almost like new, fast and reliable; bargain, £12.—B. Morris, Bourne.

2h.p. Minerva, accumulator ignition, spring forks, Watawata belt; £10.—Gollin, London Rd., Grantham.

1909, late, Humber, two-speed, Roc clutch, as new, Whittle belt; £30.—15, Homer St., Balsall Heath, Birmingham.

MOTO-REVE, new September, 1909, little used; cost £41, take £25.—No. 4,372, *The Motor Cycle* Offices, Coventry.

1907 Triumph, 3h.p., with accessories, perfect; £21; may be tried by appointment.—Dr. Bigg, Bingham, near Nottingham.

4½h.p. Minerva, new 1903, in perfect condition, 2½in. tyres, two accumulators, had very little use; £25.—Sibson, East Bond St., Leicester.

TRIUMPH, Rex, Minerva, Excelsior motors, new and second-hand; send for weekly list.—The Victoria Garage and Electrical Co., Ltd., Coventry.

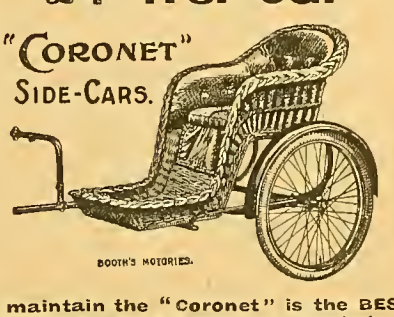
2½h.p. Quadrant, h.b. control, spray, new tyres, fine condition; £7 10s.; part exchange half-plate camera.—Johnson, watchmaker, Nuneaton.

TRIUMPH, 1908, with lamp, horn, touring bags, and spares; not ridden since overhauled by makers; £28.—Box No. 4,343, *The Motor Cycle* Offices, Coventry.

1910 Triumph, new, as unpacked from crate, not yet been ridden; best offer over £45, immediate disposal; must sell.—4,366, *The Motor Cycle* Offices, Coventry.

7-8h.p. Minerva, late 1909, R.O.M. combination tyre, Powell two-speed and free engine hub in back wheel, handle-bar control; £40.—Sibson, East Bond St., Leicester.

£4 17s. 6d.



We maintain the "Coronet" is the BEST DESIGNED SIDECAR on the Market.

Free from Side-slip.—The "Coronet" Sidecar is attached in three places, the front down tube, bottom stay, and saddle bolt, and can be detached in three minutes. Every tube of attachment is telescopical and adjustable to suit any length wheelbase, any height or width. When attached the combination is as firm and rigid as a Tricar, and entirely free from side-slip, and can be driven safely without passenger if desired.

Price £4 17s. 6d. Discount to trade.

LATEST PATTERN HANDLE-BARS.

Slightly upturned, with drop ends, built of heavy gauge tubing, and well plated. Per pair, **6/6.**
We build handle-bars to your own dimensions from **7/-**

LOW SEAT-PILLARS, 4/3.

Discount to trade.

SILENCE.—My own **Silent Silencers.** Noise reduced to a minimum. No back pressure. Hundreds in use. Only **3 3** each.

"GRIPSKIN" BELTING.

Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

⅝in., **10d.**; ¾in., **11d.**; ⅞in., **1/1**; 1in., **1/2.**
Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

Clincher Covers: 26in. or 28 × 2in., 2¼in., 2½in., **16/6.**
Dunlop Covers: 26 × 2in., **15/6**; 26 × 2¼in., **17/6**; 28 × 2¼in. or 2½in., **15/6.**
28 × 2in. Dunlop Covers: Beaded, **14/6**; Wired, **10/6.**
24 × 2¼in. Clipper-Reflex, heavy treads, **12/6**; ditto tubes, **4/-.** 28 × 2¼in. Clincher Tubes, **3/3** each.
Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from **59/6**
Your old coil and acc. taken in exchange.

CARBURETTERS.

BROWN AND BARLOW. AMAC.
Let us quote you for converting your machine to handle bar control. We keep a large stock of carburetters.
OLD CARBURETTERS BOUGHT.

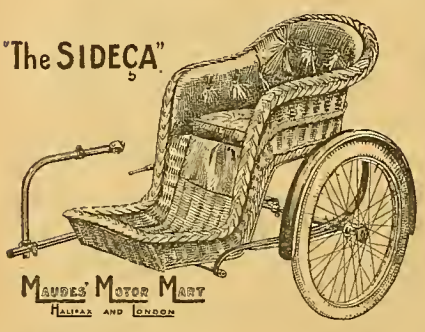
MISCELLANEOUS.

De Dion Car Frame, wheels, differential	£3 10s.
New Water-cooled Cylinder M.O.V., 81 mm. bore	19/6
Six good Plain Coils .....each	3/3
Dozen good Trembler Coils .....each	7/6
Mudguards and Stays 3in.,	2/11, 4in., 3/6
Silent Silencers for engines to 5 h.p.	3/3
Long Handle-bars, well plated	5/6 and 6/6
500 Fuller Midget Trembler Coils	17/6
200 Fuller Plain Coils (your old coil taken in exchange)	10/6
250 Mirror Lens Lamps, with generators	14/9
50 Pairs New X'lall Spring Forks, latest	15/-
Longuemare, Minerva, F.N. carburetters .... each	6/6
Osborne Four-speed Gear, ...	35/-
28 × 2¼ Clincher Tubes	3/3
Amac and B. & B. carburetters	7/6
Good Forecarriage, complete, with tyres.....	£2 19s.
Light Car Frame, with springs and wheels	£2 10s.
Norman Two-speed Gear, nearly new	£2 5s.
New Twin Antoine Cylinder.....	20/-
New Amac Carburetter, handle-bar control	17/6
Second-hand pair XL'All or Matchless Spring Forks	9/6
De Dion Two-speed Gear Box, nearly new	£2 5s.
Low tension Magneto suit car	27/6
New Pistons, 81 mm. diam.	3/9

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), **HALIFAX**
Telephone 1062.

MAUDES' MOTOR MART

HALIFAX AND LONDON



The finest sidecar at present on the road irrespective of price.

"Par Excellence."

Double Cee springs. Stove enamelled in two coats. No wasted or unnecessary plating. Luxuriously upholstered either red or green. Finished any colour to order.

However we could chant its praises "for months and mouths and months," but send for pamphlet.

£5 5 0

ALL COMPLETE.

DISCOUNT TO TRADE.

Immediate Deliveries.

We are experiencing some little difficulty in getting deliveries of Triumphs, and offer £46 nett for free engine models (three) and £42 10s. standards (new).

N.S.U.'s

Six 3 h.p. models, with magneto, N.S.U. spray carburetter, 2¼in. Peter Unions, 26in. wheels, any colour finish, which we can offer for **£25.** Brand new.

We are buyers of any number of good magneto machines, with or without two-speed gears, also of small modern cars.

Cars and Motor Cycles sold on commission, 5%. No sale, no charge. All advertising, garage, cleaning, etc., free.

Special Clearance in Accessories.

Complete Lists upon application.

Six new soiled Bosch Plugs; listed 3/6	2/3
Two 1910 Amac H.B.C. Carburetters	27/6
One 1910 B. and B. ditto	27/-
Two 20 amp. h.r. Fuller Accumulators; listed 77/-	11/-
Two Pairs Matchless Spring Forks; listed 15/6	12/6
Ten 26 × 2¼in. Clincher Red Tubes (new)	3/3
Fourteen 26 × 2¼in. ditto Grey (new)	4/6
Three Two-cylinder Trembler Coils (new)	10/-
Six Toolkits. Marvellous value	7/6
Separate Generator Lamps, large size, complete	12/6

Send for Lists. We have a very large number of goods to clear at throw-away prices.

PHŒNIX Quad Car 8 h.p., two-seater, two cylinder, a beauty £40

MAUDES' MOTOR MART,

136, Great Portland Street,
(Off Oxford Circus),

LONDON, W.

Telephone 552 Mayfair. Telegs.: "Abdicate, London."
Hours 9 to 8. Sats., 9 to 6.

MOTOR BICYCLES FOR SALE.

TRIUMPH 1909 condition as new, lamp, horn, spares, Cowey speedometer; £38 10s.—Warner, Warwick.

2½ h.p. Rex Lightweight, magneto, splendid condition; £16 10s.—Shukey, Schools, Warwick.

F.N., 5-6h.p., 1909, with handle-bar control, footrests, brazed induction pipe, supplying gas separately to each cylinder; bargain, £30.—Holroyd, Warwick Av., Earlsdon, Coventry.

MOTO-REVE Twin Lightweight, late 1908 machine, magneto, spring forks, magnificent goer, and in perfect condition; £20; approval; deposit.—Johnson, 44 Clarendon St., Coventry.

1910 Twin Premier, 3½h.p., new in February, speedometer, lamp, two generators, horn, perfect in every respect; cost £57 10s., accept £44 10s.—Welford, 251, Mansfield Rd., Nottingham.

1909 Peugeot, 3½h.p., free engine, two-speed gear, with sidecar, complete, not run 1,000 miles; cost £62, will accept £30; immediate purchase, buying car.—Gas Maintenance Co., George St., Nottingham.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

1909 Triumph, standard model, studded tyres, in nice order; lowest £32.—Apply, Motor, 70, Mawson Rd., Cambridge.

1909 Triumph, 3½h.p., perfect condition, practically new; owner died shortly after purchasing; £35.—Tuskip, Hardwicke, Shefford, Beds.

2¾ h.p. F.N., compression perfect, takes sidecar, Continental, Palmer (unscratched), spring forks long bars; £12.—Cannon, Taylor's Restaurant, Dunstable.

5-6h.p. Sarolea Twin, with sidecar to seat adult and child, Chater-Lea Palmer cords, splendid condition, good hill-climber; bargain, £25.—W., 13, Wellington St., Luton.

VINDEC Special, 1907, 5h.p., magneto, two-speed gear, 2in. tyres, Whittle belt, in sound running order and condition, been little used; £26.—Wallis, grocer, Hills Rd., Cambridge.

WHAT Make Motor Bicycle do you fancy? We can supply and give early deliveries. We have actually in stock new Triumphs, Premiers, and Bradburys, cash or instalments.—Parker and Son, St. Ives, Hunts.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

1910 Triumphs, standard and free engine models; delivery from stock.—Stour Cycle Depot, Stourbridge.

TRIUMPHS.—Several good 1909 models from £34; also 5-6h.p. F.N., 4-cyl., 1909, £32.—Withers, High St., Stourbridge.

REX, 3½h.p., £6 15s.; good tyres, in running order, accumulator and coil, complete, with horn.—Jones, Cycle Works, Velindre, Henllan.

3½h.p. Brown, magneto, Brown and Barlow carburetter, handle-bar control, excellent running order; £14.—Jacob, Mertonville, Newbridge, Mon.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

CLYDE, 2¾h.p., magneto, good condition, reliable; £8.—Nelson, Fleet Rd., Fleet, Hants.

TRIUMPHS, 1910 models; delivery from stock.—Kerridge, 9-11, Market St., Alton, Hants.

1910 Triumph, complete; immediate disposal; going abroad; £38.—Ionochs, Nibley, Dursley, Glos.

TRIUMPH, 1910; delivery from stock after March 31st.—Davenport Vernon, Ltd., High Wycombe.

MORRIS for second-hand machines at bargain prices. Let me send you a list. All makes in stock.

MORRIS.—Immediate delivery of Standard and free engine Triumphs.

1909 Lightweight Wolf, V belt, perfect condition, little used; £16.

1909 3½h.p. Speed King Rex, very fast, low, splendid condition; £25.

1909 Triumph, excellent condition throughout; £33.—Morris, Holywell, Oxford, sole district agent for P. and M.'s, Indian, Triumph, V.S., and Douglas motor cycles.

TRIUMPHS, 1910, delivery from stock; second-hand Triumphs taken in part payment.—Laytons, Bicester.

LATE 1907 Triumph, warranted perfect, detachable non-skids; price £28; low frame.—Harper, Calne, Wilts.

3½h.p. N.S.U., 1909, perfect condition, tyres good as new; best cash offers to Rossiter, 23, South Rd., Kingswood, Bristol.

3h.p. Humber, chain, good condition, splendid engine, accessories; best offer.—Greenwood, Harwell, Steventon, Berks.

1908 5-6h.p. Vindec (h.b. control), adjustable pulley, new Palmer cord and Clincher studded tyres; £27.—Hunt, Ascot.

MAUDES' MOTOR MART

HALIFAX AND LONDON

All machines guaranteed in good running order before delivery.

NEW MODELS FOR IMMEDIATE DELIVERY.

New **1910 BRADBURY,** standard .....
New **1910 MOTO-REVE,** 2 h.p. .....
New **1909 REX,** 5 h.p., two speeds .....
New **1909 REX,** 3½ h.p., Tourist Model .....
New **N.S.U.,** 3 h.p., magneto .....
New **N.S.U.,** 3½ h.p., magneto .....

SECOND-HAND MACHINES ACTUALLY IN STOCK.

ROC, 1909 model, 4 h.p., two speeds, latest spring forks, Bosch magneto, variable pulley, good order, and like new .....
ROC, two speeds, low built, magneto, good condition and order .....

CARS FOR SALE.

We have a very good 20 h.p. Four-cylinder **PRUN** Car, four speeds and reverse, magneto, side entrance, w head and tail lamps, which, being rather high built, admirably suited for colonial usage. Just had nearly spent on new body, radiator, and general overhaul. crate free and pay freight charges to any port in world for **£160.** A bargain.

***STANDARD** Car, 16-20 h.p., six-cylinder, magneto, as new, complete with hood, folding screen, Stepney, head, side, and tail lamps, five-seater, side entrance, excellent condition throughout;
PHŒNIX Quadcar, 8 h.p., two-cylinder, two speeds & reverse, good tyres, new gears, and perfect .....
LOCOMOBILE 5 h.p. Steam Car, good order .....
***N.S.U.** 3½ h.p., magneto, brand new, 26 × 2¼in. tyres, low built .....
***N.S.U.** 3 h.p., magneto, brand new, only 4 left; cash
***N.S.U.** 5½ h.p., twin, magneto, low built, only 2 left
***REX** 5½ h.p., magneto, low built, good tyres to both wheels, in beautiful condition throughout .....
***BRADBURY** 3½ h.p., brand new 1910 model, standard throughout .....
***TRIUMPH** 3 h.p., magneto, grey finish, Palmer tyres to both wheels, handle-bar control, etc. .....
***TRIUMPH** 3 h.p., low built, in good condition, etc...
***KERRY** 5½ h.p., low built, 26 × 2¼in. tyres, in good condition, a splendid sidecar machine .....
***HAMILTON** 4 h.p., low built, handle-bar control, footboards, etc. .....
***ARIEL** 3½ h.p., B. and B. carburetter, good tyres, 26 × 2¼in., low built, etc. .....
***PEUGEOT** 4 h.p., twin-cylinder, low position, a fine climber .....
***MINERVA** 4½ h.p., twin, 26 × 2¼in. tyres, handle-bar control, in splendid condition .....
***MINERVA** 2¾ h.p., handle-bar control, cream finish
***CLARENDON** 3 h.p., M.O.V., accumulator ignition, good tyres .....
***EXCELSIOR** 3 h.p., grey finish, a good climber ..
***MINERVA** 3½ h.p., grey finish, in splendid condition, good tyres to both wheels, 26 × 2¼in. .....
***N.S.U.** 3 h.p., low built, long bars, B. and B. carburetter, handle-bar control, Whittle's belt, adjustable pulley .....
***ROVER,** low built, 26in. wheels, cream finish, 26 × 2¼in. wheels, Amac handle-bar control, in good condition throughout .....
***FAIRY** 2 h.p., low built, an ideal lightweight .....
***HUMBER** 3½ h.p., two speeds and free engine, grey finish, as new, 1909 model, all accessories .....
***N.S.U.** 3½ h.p., 1907 model, Roc two-speed gear, low built, splendid tyres to both wheels. A beauty..
***BRADBURY** 2¾ h.p., three-speed pulley, in good running order .....

OUR SPECIAL OFFER.

***3 h.p. BARTER,** in first-class running order, complete with number-plates, lamp, horn, etc. All ready for the road .....
Or **20/-** down and balance **5/-** weekly.

50/- down, and the balance 5/- per w secures the following:

***QUADRANT** 1¾ h.p., spray, good condition .....
***DURKOPP** 2¾ h.p., good tyres, in A1 condition ..
***BROWN** 2 h.p. A good little mount .....
***EXCELSIOR** 2¾ h.p., long bars, spray carburetter, rubber and canvas belt, etc. .....
***BRADBURY** 2¾ h.p., three-speed pulley, in good running order .....
***MINERVA** 1¾ h.p., spray carburetter, in fair condition

All machines in good running order before leaving works, and tested by experienced men.

Machines marked * are in stock at Halifax, othe Londoo.

MAUDES' MOTOR MART,

136, Gt. Portland St.
(off Oxford Circus),
LONDON, W.
Hours 9 to 8, Sats. 9 to 6.
Tele {grams: 'Abdicate, London. phone: 552 Mayfair.

Powell St.
(behind Victoria Hal
HALIF
Hours 9 to 6, Sats. incl
Tele {grams: 'Petrol, Ha phone: 433 Nationa

SECTION IX.

merset, Devon, Dorset, and Cornwall.

RIUMPH and Motosacoche. 1910 models in stock; cash exchange, deferred payments.—Dan Guy, ymouth.

1h.p. Humber, chain driven, spray carburetter; £6 2 15s., or nearest offer.—Selby, Wimborne, Alex-dra Rd., Parkstone, Dorset.

INGLE-CYL. Magneto (N.S.U.), spring forks, perfect running order, numerous refinements costing £7; rticulars; £19 10s.—Miller, Redlands, Weymouth.

09 3½h.p. Rex, new September, Osborne four-speed pulley, starting handle, not ridden 500 miles; er going abroad; price £35; full particulars on ap-cation.—L. J. Hook, High St. W., Honiton.

SECTION X.

otland.

½h.p. Ariel, Xl'all spring forks, good running order; 2 £10.—Cran, Dingwall.

RIUMPH, 1909, with Cowey speedometer, and 1909 Bradbury, as new; particulars.—Dott Thomson, ur.

09 Triumph, engine newly overhauled by makers, 1910 piston, spares; £35. — McLaggan, Glen-ond, Methven.

N., 1910, two-speed, lightweight; immediate delivery from stock; catalogues post free.—Rossleigh, Ltd., 3 Shandwick Place, Edinburgh.

RIUMPHS, 1910 standard, or free engine models; immediate delivery from stock; catalogues post free. ossleigh, Ltd., 32, Shandwick Place, Edinburgh.

4h.p. Rex, 1908, magneto, Michelin studded tyre rear, et Continental front, 1909 B. and B. carburetter, fast a reliable; £14.—Miller, Golden Sq., Duns.

COTLAND'S Largest Motor Cycle Firm.—Rex, V.S., Indian, Moto-Reve, Phelon and Moore, Zenith, glas, Roc, Griffon; we stock all these, and can supply other make.—Alexander's Motor Exchange, Lothian Edinburgh.

TRICARS FOR SALE.

4h.p. Crypto Tricar, splendid condition; £20.—74, Lady Margaret Rd., Tufnell Park.

4h.p. Riley Tricar, re-painted and overhauled, splendid machine.—W., Elms House, Hammersmith.

5h.p. Riley, water-cooled, Chater-Lea frame, wheel steering, bucket seats, two speeds; £28.—78a, Brownhill Catford.

LEY Tricar, 6h.p., three speeds and reverse; expert examination or trial; £43, lowest.—Aricoma, Brighton Rd., Purley.

5h.p. N.S.U., and forecar, two speeds, magneto; any trial; 35 guineas.—Motor Unionist, 18, St. John's Friern Barnet, N.

TRICAR 6h.p., wheel steering; £25, or 3½h.p. cycle and cash.—Particulars, 41, Harmer St., Graves-end, 700 by 85 cover wanted.

TRICAR, perfect condition, modern standard make (water-cooled, magneto ignition preferred); cheap. Ashmore Rd., Paddington.

5h.p. Magneto Rex, metal clutch, two speeds, just thoroughly overhauled, climb anything; bargain, £2 -268, Victoria Park Rd., N.E.

1h.p. Lagonda Air-cooled Tricar, in perfect condition; £35, or exchange with cash for good car.—54, Ri esdale Rd., Stirchley, Birmingham.

5h.p. Antoine Tricar, Phœnix two-speed, free, two new tyres, Whittle belt, comfortable cane seat, perfect ord £25.—Dodd, tailor, Woolton Hill, Newbury.

5h.p. Stevens, Chater-Lea, open frame tricar, water-cooled, two speeds, chain drive, coach-built, new Pa rs; buying car; £35.—Brill, baker, Sidcup.

PHŒNIX Tricar, 1909, not used 800 miles; cost 100 guineas, in best condition, four lamps, speedometer, speq . take £55, or near offer.—Randall, Andover.

SB. Tricar, three speed, handle start, coach-built, tyres as new, in working order; can be seen any tim £14, or offers.—Boult, 7, Holywell St., Chesterfield.

PHŒNIX, 5-6h.p., water-cooled, magneto, multiple disc per clutch, coach-built, wheel steering, spares, as new, hai t order; £55.—Atkins, 7, Slaithwaite Rd., Lewis-

QUADRANT 5-6h.p. Tricar, good condition, free engine, two speeds, two brakes, wheel steering, coach-bui £20, or offer.—G., Clovelly, Ferndale Rd., Leyton-sto

LIGHT Tricar, twin Rex, two speeds, Roc clutch, Bosch magneto, perfect, and complete, new last Jun £36; meet 40 miles.—22, Victoria Terrace, Lea-mi on.

TRICAR, 4½h.p. M.M.C., water-cooled, free engine, chain drive, Anglian two-speed gear, in good con-liti £18; seen by appointment.—Jones, 26, Minster Rd., Cricklewood.

6h.p. Tricar, water-cooled, coach-built, free engine, two will speeds, clutch, etc., wheel steering, tyres all new; Rd. change for good motor cycle.—J. Ewen, London King's Lynn.

4½h.p. Westfield Tricar, water-cooled, coach built, three ful speeds, handle-starting, wheel steering, fast, power-Goo lendid order, lamps, horn, spares, etc.; £20.—me. Amersham, Bucks.

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Brand New 1909 TWIN REX DE LUXE, two-speed, magneto, spring forks and seat, Roc clutch, handle starting, non-skid tyres, and the ideal sidecar mount, 5½ h.p., guaranteed new .. £48 0

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1909 N.S.U., 4 h.p., Modele de Luxe, magneto, M.O.V., handle-bar control, almost new..... £35 0

1909 REX SPEED KING, used in last Tourist Trophy, a really fast single, 1910 Amac adjustable jet carburetter £33 0

1909 3½ h.p. TOURIST REX, another specially good mount, low built, fast, and a model of reliability £29 10

1909 TWIN REX, 5½ h.p., standard model, in fine order and condition, cheap for cash..... £35 0

5½ h.p. SPECIAL REX, very low, magneto, handle-bar control, exceptionally fast and good climber £29 10

3½ h.p. P & M., magneto, two-speed, spring forks, good condition, low cash bargain £31 0

N.S.U. Twin, 6 h.p., magneto, spring forks, long, low, and comfortable .....

ROC, 4 h.p., vertical engine, h.-b. control, magneto, clutch, rubber-studded tyres to both wheels, very low and good, handle-starting..... £20 0

1908 MOTOSACOCHE, in splendid order and condition, low, light, and handy, would suit a doctor £19 0

5½ h.p. TWIN REX, black finish, new tyres, cantilever seat, and almost like new, spring forks £18 15

SINGER, 3 h.p., belt drive, high tension magneto, beautiful order and good condition..... £15 10

TWIN ANTOINE, condition like new, ROM contact, spring forks, beautiful order £15 10

ANTOINE, 4 h.p., magneto, 26in. wheels, low M.O.V., a good machine at a low price, 6 h.p. .. £15 0

QUADRANT, 3½ h.p., accumulator, spring forks, in good condition, and runs very well, low, and economical £15 0

REX TWIN, 5½ h.p., spring forks, good compression, good general condition, a very powerful machine, suitable for sidecar work, at a decidedly low price £15 15

CLYDE, 3 h.p., vertical, magneto, easy starter, and pulls well, in good condition..... £12 10

1906 3½ h.p. REX, low built, spring forks, M.O.V., long bars, cheap and good, especially at £12 0

ROVER, 3½ h.p., M.O.V., 26in. wheels, in splendid order, a bargain for a working man at £12 0

STEVENS, 4 h.p., very powerful, vertical, and fitted with late h.b control carburetter, worth £15 of anybody's money £10 0

HASKARD, 2¾ h.p., easy starter, trembler coil, very flexible engine, and capable of a really good turn of speed, in very good condition £10 0

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BRADBURY, 2¾ h.p., vertical, new tyre, girders, spray, V belt, cheap and good £9 5

BEESTON-HUMBER, spray, chain drive, 3 h.p., but pulls like a 3½ h.p., and a gift at £9 0

EXCELSIOR, in splendid condition, and beautiful order, good tyre, good everything. 3½ h.p..... £9 0

REX, 3½ h.p., the John-o'-Groat's model, 22in. frame, an orphan who requires a good home for £8 15

MINERVA, 2½ h.p., splendid condition, goes like a clock, and fit for anyone..... £8 10

ARIEL, 2½ h.p., light machine, low and in running order, dirt cheap at £8 0

KERRY, 2½ h.p., 26in. wheels, spray, Palmer tyre, very low and handy, decidedly reasonable at .. £8 0

RALEIGH, 2 h.p. vertical, V belt, spray carburetter, two brakes, as good as a modern lightweight £7 15

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AFTER You've Scanned these announcements, before deciding, write to, or call on, Pullman Bros., London Rd., Norbury, London, for a list of good machines at really marvellously low prices.

PHŒNIX, 6h.p., twin, two-speed, coach-built, wheel steering, fan-cooled, spares, overhauled; photo, trial; exchange Touring Auto Cycle, 2-seater car, motor bike, and cash.—Fisher, Architect, Pontypool.

4½h.p. Humber Tricar, water-cooled, two speed, coach-built front, strong built-in rear wheel, with Chater-Lea hub, good condition, engine perfect; price £16—Burbery, 28, Thornhill Square, Barnsbury, London.

6h.p. Riley Tricar de Luxe, three speeds forward and reverse, Grack horn, electric acetylene head lamp, bodywork and upholstery in splendid condition; £50, or near offer.—Strettons, Ltd., Bath Rd., Cheltenham.

5h.p. Twin Rex Triette, air-cooled engine, Bosch magneto, two speeds, Roc clutch, 1¼ belt, specially built July, 1908, engine new in 1909, cane seat, footboards, etc.; £38, or nearest offer.—G., 33, Meriden St., Coventry.

REXETTE, 5½h.p., water-cooled, two speeds, foot clutch, wheel steering, car tyre on back, splendid running order; sell £23, or exchange for modern motor cycle, twin preferred.—H., 1, The Broadway, Denmark Hill.

CHANCE Seldom Met.—7h.p. coach-built tricar, 2 cyls., two speeds, clutch, wheel steering, new Lomax non-skid and Michelin tyre back wheel, lamps, tools, spares; trial; cash wanted; send offers.—S., 185, Portsdown Rd., Maida Vale, London.

6h.p. Quadrant Tricar, open frame, wheel steering, air-cooled free engines, two speeds, lamps, coach-built removable front, not much used; cost over £100; strong wooden house for storing; price £39.—4,322, *The Motor Cycle* Offices, 20, Tudor St., E.C.

TRICAR, 9h.p. Singer, twin wheel-steered, coach-built three speeds, reverse, heavy Dunlop tyres, water-cooled, three electric, one acetylene lamp, splendid order; owner going in for car.—Ritchie, Dental Chambers, Shettleston, Glasgow.

CHATER-LEA Model F., 1908, open sprung frame, coach-built wheel steering, two speeds, clutch, 6h.p. twin, car tyres all wheels, modern, and nearly new; £28, motor bike part, Rex de Luxe preferred.—48, Walton Rd., East Molesey.

LATEST 9h.p. Riley de Luxe Tricar, side doors, practically new condition throughout, only run 1,500 miles, most luxurious machine on road; cost £130, sacrifice, complete lamps, tools, and spares, £57 10s.—R. Else, Leawood, near Matlock.

WOLF Tricar, 6h.p., Stevens twin, water-cooled, three-speed chain driven, Fullers three units coil, wheel steering, open frame, works enclosed, dashboard like car, seats two in front, good running order; cost 100 guineas, nearest to £45.—Lindsay, Oxford Rd., Runcorn.

SINGER Tricar, 6h.p., twin, water-cooled, two speeds, chain drive, wheel steering, two new accumulators, trembler coil, coach-built, new gears, all accessories, two acetylene lamps, electric tail lamp, whole tricar lately repainted dark red and re-nickelled at cost of £40, making practically new; must sell this week; will sacrifice at £45, lowest, no offers; good reason for selling; trial with pleasure.—L. Doone, Cottage, Merstham.

SIDECARS AND FORECARS.

BAT Forecar, fits Chater No. 6 frame; £3 5s.—59, Cranfield Rd., Brockley, S.E.

SIDECAR for sale, 70s., or exchange for light trailer and cash.—165, Sidar Rd., Wood Green.

MILLS-FULFORD Sideear, good condition; £5.—11, Richmond Rd., Westbourne Grove, London, W.

WICKER Sidecar Manufacturer.—A. Cook, 37, Waterloo Bridge London. Price lists on application.

SIDECAR, good condition, fit any frame; lowest £3 15s.—Markham, 91, St. James's Rd., Liverpool Rd., London.

MONTGOMERY, flexible, right side, nearly new Continental, 26 by 2¼, clips for Triumph; £4.—Firth, Cromer House, Gravesend.

SIDECARS, £4 17s.; baskets, springs, fittings; trade supplied.—Middleton and Co., Watson St., Newington Green, London, N.

STANDARD Wicker Sidecar, 26 wheel, light, strong, left side, splendid condition, £3; ditto, 28 wheel, 48s.—Dixon, 17, Ford Sq., E.

SIDECAR, new, unused, beautifully upholstered, 26 by 2in. tyre, fit any machine; bargain, £3 18s. 6d.; worth double.—169, Newfoundland Rd., Bristol.

MONTGOMERY Flexible Sidecar, easily adjustable, to fit any 26in. or 28in. wheel machine, in very good condition; £2 10s.—Slocombe, Holders Hill, Hendon.

SIDECAR, rigid, absolutely as new, upholstered green, with art cane, all points adjustable, unscratched Continental tyre and tube, 26 by 2¼; 70s.—28, Rye Lane, Peckham.

PHŒNIX Forecar Attachment, long stays, brakes, wicker seat, etc., perfect and complete, £3; also L.M.C. Auto-Varia pulley, to suit L.M.C., 17s. 6d.—The Compression Specialists, 120, Pershore St., Birmingham.

SIDECARS.—Our £5 10s. are built from Chater-Lea fittings, including hub; our £4 15s. car is built from Chater-Lea lugs; all are complete with side strain stay and mudguard included; second-hands from £3 15s.; fitted while you wait free.—C. A. Edgar, 123, Holloway Rd., London, N.

SIDECARS AND FORECARS.

RIGID Sidecar, left side, good condition. Palmer tyre, also connections, suit Triumph, bargain, £3 10s.; Mabon clutch, 30s.; 1909 Triumph, delivered August, £36; climb anything.—Fraser, coachbuilder, Tain, Rossshire.

SIDECAR COMBINATIONS.

6h.p. Ball Bearing Twin, Chester-Lea, footboards, spare tyre, tube, rigid sidecar; £23.—Clutsom, Quorn, Loughborough.

£8 10s.—F.N., 2½h.p., good condition, new Dermatine belt, also sidecar; cheap.—Fountain, 24, Old Bedford Rd., Luton.

1908-9 Triumph, Roc two-speed, and Millford castor wheel sidecar, excellent condition; £40.—Foster, 34, All Saints St., Bolton.

4-5h.p. Twin Givandan, B. and B. carburetter, h.b. control, perfect and rigid sidecar; £11, complete.—Confectioner, 193, Garratt Lane, Wandsworth.

7h.p. Pengeot, sidecar, Chater-Lea frame, R.O.M. tyres, R.O.M. ignition, adjustable pulley, handle-bar control, very low and fast; £19 10s.—18, Ranelagh Av., Barnes.

P. and M., new July, 1908, geared, handle starting, fitted with Mills-Fulford coach-built sidecar, absolutely perfect in every way, fine passenger machine; offers.—293, Ecclesall Rd., Sheffield.

1909 Triumph, perfect condition, Rom back tyre, lamp, horn, spares; also Montgomery flexible sidecar; £40 the lot; would separate.—Pickford, 19, Pavilion Rd., Knightsbridge, London.

REX Twin, two-speed, etc., late 1909, not ridden 700 miles, genuine, over £10 accessories, complete, Montgomery sidecar; cash offers, together or separate; Kingston-on-Thames.—Box L1,783, *The Motor Cycle* Offices, 20, Tudor St., E.C.

7h.p. Waverley-J.A.P., and sidecar, with wind screen, free engine, handle starting, variable pulley, patent 9 foot silencer, engine noiseless, quantity spares, luggage basket, perfect condition, new last July; £50, bargain.—C. Rigby, 111, Cotton Exchange, Liverpool.

6h.p. Sarolea Twin, flexible and powerful, fire at two m.p.h., J.A.P automatic carburetter, R.O.M. Gurnet high speed trembler coil, bar control, Brooks pan saddle, low build, variable pulley, 2½in. Palmer cord and Gaulois, voitnrette tubes, unpunctured, first-grade art cane Montgomery flexible sidecar, detachable luncheon basket, magnificent lot; £35, or separate; photo sent.—15a, Clarendon Rd., Walthamstow.

QUADCARS.

PHŒNIX 2-cyl. Quadcar, bonnet for front, to make it single seater, three lamps, two spare outer covers, one studded, brand new, and a lot of other spares; bargain, £40, or near offer.—104, High St., Southend, Essex.

MOTOR TRICYCLES AND RUNABOUTS.

3h.p. Singer Tricycle, magneto, good order; £4 10s.—County Garage, Preston.

TWO Eagle Runabouts, three wheels, open frame, two speeds, car tyres, bucket seat, 4½h.p. De Dion £36; 6h.p. twin Fafnir, magneto, £55; photo.—Potter, 21, Leicester Grove, Blackman Lane, Leeds.

CARS FOR SALE.

10h.p. Pick Car, 2-cyl., three speeds and reverse, racy 2-seater; £65.—Below.

12-16h.p. Dennis, 2-seater, three speeds and reverse, very smart, racy type, magneto; £65.—Below.

7-9h.p. Star, 2-cyl., tonneau, three and reverse, nice little car; £45, bargain.—Below.

10-12h.p. M.M.C., 2-cyl., three and reverse, seats five, excellent car; £45.—Below.

8h.p. De Dion, single-cyl., two speeds and reverse, seats four; £47 10s.—128, High Rd., Tottenham.

6½h.p. Argyll, 2 or 4-seater, condition good, tyres new, lamps, spares; £27 10s.—Arthur Cox, Alton.

SMART 6h.p. Humber, 2-seater, hood, screen, Stepney, splendid condition; £38, part exchange.—20, Potternewton Lane, Leeds.

2-SEATER 3-cyl. Car, Collier 36 by 5½ tyres, fast and powerful; £20, or take magneto motor cycle.—41, Coronation Rd., Coventry.

10-12h.p. Sandringham, 5-seater, excellent condition; £50; motor cycle, tricar, or small car part.—28, Grove Lane, Stamford Hill.

2-SEATER Humber Car, grand climber, three speeds, reverse, side change, fast, and reliable; £36 10s.—Whiteman, 4, Grove Lane, Camberwell.

OLDSMOBILE, 6h.p., artillery wheels, 700 by 90, strong Dunlop tyres, tools, spares; photo; £22 10s., bargain.—101, Wilks Rd., Leamington Spa.

CLAPHAM.—8-10h.p. Coventry Progress, 2 cyls., very handsome little 4-seater, live axle, good tyres, mechanism perfect, overhauled by us; £36.—Below.

CLAPHAM.—10h.p. New Century, 2-cyl., M.O.V., pressed steel frame, comfortable and exceptionally reliable, mechanism perfect, overhauled by us; £33.—Below.

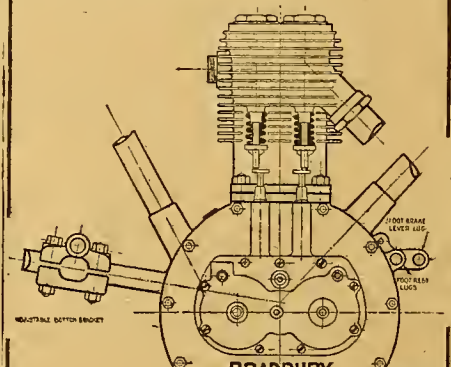
CLAPHAM.—12h.p. Darracq, 2-cyl., tyres and mechanism in really splendid condition, very speedy car hood, lamps, and registration; £45.—Crescent Motors, Park Crescent, Clapham.

BRADBURY

3½ h.p. MOTOR.

An expert opinion declared it to be ahead of anything yet turned out in the Motor World.

Owing to its special frame construction, no other Motor Cycle is as rigid, as well balanced, as steady on the road, or provides the same accessibility for repairs or re-adjustment to engine parts.



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ECLIPSE.—40h.p. Napier, 6-cyl., side entrance, f ous touring car, splendid order; £195.

ECLIPSE.—14-16h.p. Darracq, the 1910 speci immediate delivery; £225; old car part payme

ECLIPSE.—20-32h.p. Darracq, side entrance, ma hood, screen, speedometer, perfect; £155.

ECLIPSE.—25h.p. Argyll, 4-cyl., semi-limousine ignitions; a real bargain, £155.

ECLIPSE.—40h.p. Napier, 4-cyl. tonneau, hones radiator; a real gift, £68.

ECLIPSE.—16h.p. Siddeley, side entrance, hood, s dual ignition; a gift, £115.

ECLIPSE.—16h.p. Chenard-Walcker, side entranc ignitions, hood, splendid condition; £115.

ECLIPSE.—16-18h.p. Leader, 4-cyl., 2-seater, ma very smart runabout; £95.

ECLIPSE.—14h.p. Star, 4-cyl., M.O.V., side ent excellent order; £85.

ECLIPSE.—14h.p. Forman, 4-cyl., M.O.V., sid trance, new condition; bargain, £95.

ECLIPSE.—14h.p. Mutel, 4-cyl., steel frame, hoo cellent order; £72 10s.

ECLIPSE.—12h.p. J.P., 2-cyl., long chassis, sid trance, hood, perfect order; £60.

ECLIPSE.—10-12h.p. Gnome landaulet, four splendid order; £87 10s.

ECLIPSE.—6h.p. Siddeley, 2-seater, steel fram liable and good; £42.

ECLIPSE.—6h.p. Swift-De Dion, 2-seater, hood fect order; £38.

ECLIPSE.—6½h.p. Gladiator, four seats, three s extremely reliable; £31.

ECLIPSE.—10-12h.p. Star box delivery-van, very order; £60.

ECLIPSE.—3½h.p. Raleighette tricar, two speeds, cooled, splendid order; £20.

ECLIPSE.—5½h.p. Rex Triette, 2-cyl., very flu chine; £20.

ECLIPSE.—Repairs and replacements of every d tion; trade work a speciality; complete overh let us quote you.—Eclipse Engineering and Moto 255, Earlsfield Rd., Wandsworth. 'Phone, 1135 P Station, Earlsfield, L.S.W.R., 15 minutes from Wa

PALMER.—16-18h.p. Darracq, side entrance, chassis, 1906, magneto, beautiful car; £125.

PALMER.—16-22h.p. L'Automctrice, double fan seating seven, magneto, splendid hire car; £

PALMER.—8-10h.p. Humber, side entrance, Stepney, head and side lamps; £55.

PALMER.—10-12h.p. absolutely new M.M.C. solid tyres, 2-cyl., late model; £55.

PALMER.—6h.p. Benz, 4-seater, solid tyres, r good running order; clearance price £12.

PALMER.—10-12h.p. Daimler lorry van, 2-cyl., carry over 30 cwt.; £50.

PALMER.—8h.p. Jackson, racing type, genuin Dion engine, pressed steel frame, absolutely fect; £75.

PALMER.—16-24h.p. De Dietrich, tonneau, seats persons, splendid reliable car, beautiful cond £75.

PALMER.—8-11h.p. Panhard waggonette, 3-cyl. tyres, canopy, storm curtains; £45.

PALMER.—16-20h.p. 1907 Beeston Humber, si trance, dual ignition, gate change, condition new; £175.

PALMER.—Humber chassis, complete, ready engine, £25; M.M.C. chassis, complete, rea ceive engine, £15.

PALMER.—9h.p. Jackson, 2-seater, bucket bod erul condition like new; £85.

PALMER.—9h.p. taxicab, latest style, landaulet seating four inside, very smart; £150.

PALMER.—8h.p. Buchet chassis, late type, long fast running engine; £75.

PALMER.—16-24h.p. De Dietrich Chassis, late M.O.V., pressed steel frame; bargain, £85.

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PALMER.—14-16h.p. 1910 Darracq. I mak largest possible allowance for old car; £22

PALMER.—Bleriot type monoplane, splendid m has flown; price, less engine, £75, with engine

PALMER.—All above seen at L. N. Palmer Trevelyan Rd., Tooting. Garage one minute Rd. tram terminus, Tooting. 'Phone, 208, Stre Photos, details. Easy terms Exchanges.

JACKSON, 6h.p. De Dion, on the road daily; 26, Bristol Rd., Birmingham.

ARGYLL Car, 8h.p., three speeds and reverse, 4 good running order; £45, or part exchange Motor, 31, Woodside Gardens, Bruce Grove, Tott

CARS FOR SALE.

TONY-HUBER, 10-12h.p., 4-seater, hood, Stepney, everything in splendid condition; trial; £55, bargain; take bike part payment.—4, Frances St., Woolwich.

TUMBERETTE, 2-seater, 5h.p., two speeds and reverse, fast, reliable, smart little car, painted green, lamps, tools, etc.; £35.—Owen, Cottage, Melbourne Lodge, Ealing.

SMALL Humberette Car, complete, less engine, back axle wants little repair, 2-seater, in splendid condition; £10 the lot; tyres in excellent condition.—Topp, Carlisle St., Soho.

A BARGAIN to immediate purchaser for £45.—10h.p. 2-cyl. car in excellent running order, four speeds and reverse, Dunlop grooved tyres.—Address, H., 2, Rochester Rd., Earlsdon, Coventry.

STANLEY Steam Car, 10h.p., boiler just re-tubed, everything overhauled at cost about £60, tyres first-class, Model EX, 1907, many extra fittings, paraffin burner; take good 1909 or 1910 motor bike part exchange value £80.—Rossiter, 57, Walter Rd., Swansea.

BARGAINS.—We do not sell "auction cars." Ten years practical experience of motors enables us purchase sound machines, overhaul them carefully, and offer with guarantee of satisfaction to our customers. Appeal a selection. Fullest details on application.—Below.

12h.p. Darracq, smart little 4-seater, £30; 10-12h.p. 2 Aster, m.o.v., side entrance, powerful and fast, 15h.p. Star, 4-cyl., Stepney and lamps, four speeds and reverse, mechanism as new, £60; 10-12h.p. Speedwell very nice medium size car, 2 cyls., runs like 4-cyl., £55; 8-10h.p. Deschamps, four speeds and reverse, good, £42 10s.—Below.

TWENTY Minutes from Bank by tube will land you here for inspection of above and other cars.—Sully and Co., 10, Old Town, Clapham, S.W. 'Phone, 1781 Battersea.

10-12h.p. M.M.C., 5-seated tonneau, upholstering not scratched, body, paint, in splendid order, 2 cyls., Daimler engine, accumulator and coil ignition, four speeds and reverse, chain drive, good strong hire car, or take good van up to 15 cwt.; a bargain, £35, or exchange for 1909 Triumph motor cycle.—Turvey and Co., The Motor House, Sunderland.

ENGINES.

4h.p. Engine, carburetter, perfect order; 35s.—Gibson, Howth View, Merrion, Dublin.

1h.p. M.M.C. Engine, £3 5s.; 2h.p. Werner, 17s. 6d. 2 —59 Cranfield Rd., Brockley, S.E.

ENGINES.—Roc, 4h.p., single-cyl., new 1910 type; early deliveries.—A. W. Wall, Ltd., Birmingham.

4h.p. N.S.U., with magneto, m.o.v., perfect condition; cash offers.—Alcock Cranmore, Meads, Eastbourne.

NYE'S!—Engine exchange. Your old engine and cash for a new one. Try us. Speciality: Peugeot, J.A.P.—Nye's, 69, Leather Lane, Holborn, London.

4h.p. Humber w.c. Engine, complete with silencer, carburetter, clutch, and pipe connections, etc., perfect, and equal new; 10 guineas.—Topp, Carlisle St., Soho.

4h.p. Air-cooled M.O.V. Engine, expanding pulley, perfect condition, with Chater frame and front wheel (no tyre); 27s. 6d. to clear.—Ashdene, Enslin Rd., Epsom.

4h.p. Antoine Engine, 85 by 85, fitted with new clutch, also starting handle, cost £3 16s.; accept £4 15s. exchange lower power and cash; also inch Whittle belt.—Grosvenor Rd., Walthamstow.

4h.p. J.A.P., 85 by 85, A.O.V., with magneto, complete with chain drive, and adjustable pulley, very new; £11, or nearest offer.—Parsons, Seeburg, Herne Hill, South Woodford. 'Phone, Wanstead 60.

6h.p. Twin Antoine, Longuemare carburetter, exhaust pipes, and silencers, all fitted, very powerful, guaranteed perfectly sound, £7 10s.; Mabon clutch to fit same, perfect order, 30s.—Wallis, grocer, Hills Rd., Cambridge.

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SEVERAL 20 amp. C.A.V. accumulators, nearly new, charged; 6s. 6d.—White, 94, Copeland Rd., Peckham.

SPECIAL Offers in accumulators, 4 volt 20 amp., 10s. 6d.; approval.—A. Collis, 53, Brighton Rd., Bristlale.

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JEBRON, 2s. 6d. each rivet fitted; Jebron trimmers, 9d.; Jebron screws fit Bosch magnetos DA2, DAV, contact breakers 5a, 5b, 5c, 5s. 6d. pair; old screws Jebronised, 2s. 6d. each. Over 10,000 fitted. Try it.

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UNITO Patent Coupling, price one guinea, for connecting motor cycle to pedal cycle. When touring use the Unito. Many people have expressed the opinion they prefer it to a sidecar and for a low power machine it is much more suitable. If you do not know all about the Unito write (Dept. B.), Unito Coupling Co., Brecon St., Cardiff. London Agents, 75, Bishopsgate St. Without.

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BASTONE'S.—New rubber studded motor cycle covers, wired edge, 26 by 2, 17s. 6d.; 26 by 2¼, 18s.; 26 by 2¼, 19s. 6d.; 28 by 2, 18s. 6d.; 28 by 2¼, 19s. 6d.; beaded edge 2s. extra.

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PROFESSIONAL.

CATALOGUES.—Engineer, with considerable journalistic and advertising experience, is open to prepare and design catalogues of motor cars, motor cycles, and accessories, including decorative covers, literary matter and illustrations, either photographic or perspective line drawings. Low charges and satisfaction guaranteed. Estimates submitted for complete production of catalogues, booklets, etc., including printing, and, if desired, distribution.—Box 4,370, *The Motor Cycle* Offices, Coventry.

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EXPERIENCED Motor Cyclist desires position with motor cycle firm or dealers, as salesman, demonstrator, or otherwise.—Pike, 3, Tichborne St., Leicester.

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6h.p. Two-speed N.S.U. and sidecar, for single; sell £34.—W. Evers, Birkdale Rd., Dewsbury.

EXCHANGE Osborne Four-speed Gear for twin trembler coil.—Mathias, Latchford, Warrington.

THREE-SPEED Push Bike, excellent condition, for motor cycle.—Paice, Townhed Farm, Coatbridge, N.B.

REALLY Good Piano wanted, in exchange for tricar and motor bike.—P. Radford, 2a, Kelvin Rd., Highbury, N

EXCHANGE First-class piano, cost 35 guineas last year, for modern motor cycle.—Millard, Creswell, Mansfield

EXCHANGE gent's brand new green enamelled roadster cycle for good sidecar.—Short, Spread Eagle Yard, Chesterfield.

EXCHANGE Locomobile steam car, 6h.p., for good low build 3½h.p. motor cycle, or offers.—4 and 6, Mill St., Nantwich.

EXCHANGE for 1909 Triumph motor cycle, M.M.C. car (see Car advertisement).—Turvey and Co., The Motor House, Sunderland.

WANTED, small car; exchange 6h.p. water-cooled tricar, open frame, excellent condition.—P. Turner, Quorn, Loughborough.

5h.p. Riley-Chater-Lea Water-cooled Tricar, two speeds, wheel steering, for magneto cycle, good condition.—78a, Brownhill Rd., Catford.

2-SEATER Car, less engine, gear box, tyres, for cycle engine or other parts.—Particulars, Williams, Low Grange House, Spennymoor.

SPLENDID 25h.p. Beeston Humber and 2-seated Clement motor cars, everything; compulsory sale, or part exchange.—Good, Kilwinning.

LIVERPOOL.—Motor Cycles exchanged for latest models, or sold on commission.—White's City Depot, 22, Brooks Alley. Royal 3782.

EXCHANGE brand new Centaur roller skates, cost 30s. nett cash last week, for 18s., or anything in motor line.—Millard, Shandon, Chesterfield.

ADVERTISER wishes to dispose of 42 guinea Pohlmann piano, or exchange for good second-hand tricar.—Exchange, 11, Lexden St., Warrington.

EXCHANGE Half-decked Sailing Boat, yawl rigged, thorough condition, all accessories, for motor cycle, magneto.—B., 27, Maison Dieu Rd., Dover.

N.S.U., 3½h.p., free engine and two-speed; any trial; exchange lower power and cash, or sell £26.—E. Dodd, 57, Parrin Lane, Mouton, near Manchester.

EXCHANGE handsome lustrous single stone diamond ring, perfect stone, cost 55 guineas, for 1909 Triumph, must be free engine.—Tommis, pawnbroker, Northampton.

9h.p. Laurin-Klement Car, magneto, 2-seater, 2-cyl., hood recovered, thoroughly overhauled, repainted; price £100, magneto motor cycle part.—Fisher, 6a, High St., Hampstead.

DUESLEY-PEDERSEN Cantilever Gent's Machine, 15-guinea model, brand new, and just from works; motor cycle wanted, up-to-date, and good make; send particulars.—Clarkson, Prospect St., Batley.

NOVELTY

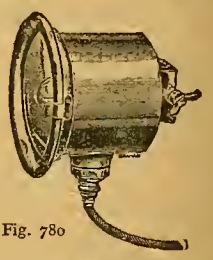

Fig. 780

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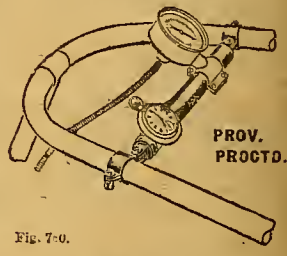

Fig. 7?0.

"CROSS BAR"

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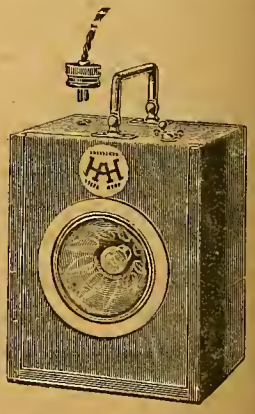
Price **7/6** complete.

State width of handle-bar when ordering.



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LONDON, E.C.

THE MOTOR CYCLE

Vol. 8. No. 368. April 14th, 1910.

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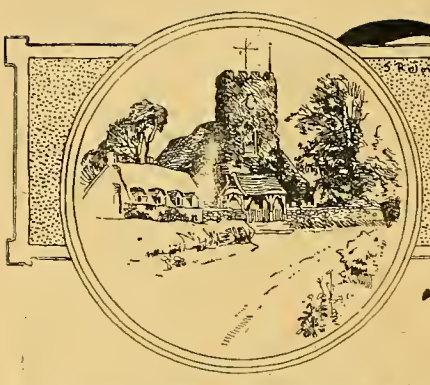
ADDRESS—20, TUDOR STREET, LONDON, E.C.

Variable Compression Ratio.

AN article in this issue on the ratio of compression in motor cycle engines shows that an internal combustion engine is working under most unfavourable conditions, particularly in the case of single-geared machines. If all motor cycles were variably geared, and particularly if they were provided with three or four speeds, the ratio of compression could be higher with good effect than in the case of single-geared motor cycles. This question of ratio of compression recalls the great advantages that would accrue from a device to vary the compression. The first engineer who succeeds in making an internal combustion engine with a practical system of variable compression will have accomplished a very great stride in the direction of eliminating the variable gear question. Numerous devices have been patented at various times for varying the ratio of compression, but none of them, so far as we are aware, have ever been perfected. As the contributor of the above mentioned article points out, compression is variable by means of the throttle, or, to be more explicit, by the amount of gas the rider allows to enter the cylinder. It is also variable to some extent by the position of the piston with regard to the time at which the spark takes place and explosion occurs. Putting these two means of varying the compression on one side, it will readily be seen that on level roads, the ratio of compression might reasonably be raised to a considerable extent. For hill-climbing purposes, when the greatest power is required, the opening of the throttle and admittance of as full a charge as possible raises the compression. This is a disadvantage, because it occurs when the engine is revolving comparatively slowly, and has difficulty in overcoming the increased compression at the slow speed at which it is forced to run. If the compression ratio could be varied in the engine to such an extent that a variable gear would not be required on a moderately powerful motor bicycle, it is one of those improvements which would tend towards greater simplicity and increased comfort.

The M.C.C. Inter-team Competition.

ON page 317 we publish the 1910 rules and regulations for the Motor Cycling Club Team Competition for *The Motor Cycle* Challenge Cup. Two improvements in the rules which we think might well be introduced for 1910, and which we recommend to the notice of the organisers, are: (1) Pedalling might reasonably be prohibited. The course is only 100 miles in length, and any motor cycle ought to be able to cover this distance without the rider having to resort to pedal assistance. The competition is promoted to bring out the driving skill of riders, and the trophy goes to the team whose members take care that the mechanism of their machines is in perfect order previous to the start. There is, therefore, no reason why belts should not be run in beforehand to obviate any possibility of slipping through stretching. It is a common sight to see competitors pedalling on the steeper hills to relieve the belt. (2) The members of each team should wear a distinctively coloured armlet as well as a number. We think this would simplify the duties of the officials as well as making the event more interesting from a spectacular point of view. We recommend the secretaries of clubs intending to enter for the competition to bring the matter before their committees without delay.



Westward Ho WITH A SIDECAR

BY B.C de W SIFFKEN

THE broad white road, winding Devonshire lanes, high banked and gorgeous with violet and primrose below, gorse and blackthorn above, plough and pasture, river and streamlet, busy market town and sleepy hamlet; the "puttah-puttah" of a well-tuned twin, slipping belt, punctures, shying frantic horses, cream and cider—such are the outstanding memories of a sidecar tour in the spring in the Garden of the West.

On the Thursday morning after Easter, my wife and I set out upon our trip from London. Our equipment consisted of a 5 h.p. Rex de Luxe motor cycle and Montgomery sidecar (flexible or rigid at will), 2¼in. Palmer Cord tyres on sidecar, 2in. Michelins on the twin-tyred driving wheel, Roc clutch and single gear with adjustable pulley. We took with us a big expanding basket on the carrier, a well filled dress suit case under the sidecar body, and odds and ends of all kinds under the cushion and mat of the car; the whole outfit, including passengers, weighing exactly 6 cwts.

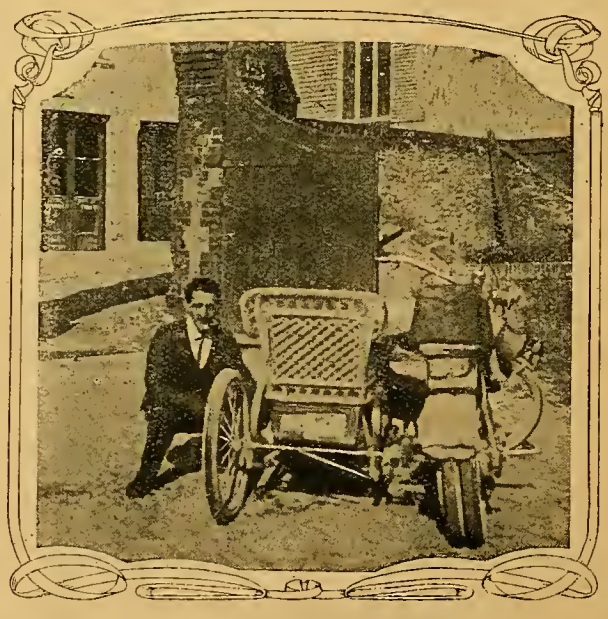
A leisurely progress, delayed by the loss of a small handbag which dropped out of the car, but which was subsequently recovered, brought us to Hungerford about five o'clock. Extensive building operations were going on here, and one of the contractor's pet rocks went through one of my back tyres. This necessitated a somewhat lengthy repair, and here I took the opportunity of lowering the gear and fitting a new Whittle belt which I had with me. The stretch of this incurred continual shortening at first, and delayed us so much that we only reached Marlborough that night. We stayed at one of the best hotels of the town, which I will not name. The comfort of the place left nothing to be desired, but the bill somewhat neutralised the pleasure.

Marlborough to Bristol.

Thence on the Friday we set off for Bath and Bristol. All went well until we were approaching Calne. I may mention that the sidecar, which had begun the journey rigidly fixed for the better negotiation of London traffic, had been made flexible the day before (only a five minutes' job). The consequence of this was that a shower having come on, we made a gallant and determined attempt to knock down two stone cottages in Calne by means of a wild skid at a dangerous corner. Conversion to rigid once more brought us to tea with friends at Bristol, and from there we ran to Brent Knoll, on the road to Bridgwater, and were most pleasantly received at a little wayside inn called the Fox and Goose. Here we were made most comfortable, and the cost of our night's entertainment was considerably less than half what we had paid at Marlborough. Next day we had an uneventful ride through Taunton to Minehead and Porlock.

A Circuit to Avoid Lynmouth and Parra ombe.

At Porlock we stayed till the Tuesday, spending our time in rambles upon Exmoor and the shore. Our hope was to continue our journey to Ilfracombe, but the intervening mass of headland and mountain forbade us the direct road. We might have got to Lynmouth, but we should never have got out of it again, and much the same might be said of Parracombe, so we were compelled to make a circuit. This we did, starting on the Tuesday afternoon back to Dunster and then by Wheddon Cross to near Bampton, and then turning to the right to S. Molton by routes 791, 729, and 792 of the Contour Book (Western Section). On this day we encountered our first engine trouble. Hitherto, our few involuntary stops had been caused by belt, tyres, and wet on the magneto.



The writer's Rex de Luxe motor cycle and Montgomery sidecar.

This day, the weather and the engine were both hot, and there was a lack of power consequent upon a warped and pitted exhaust valve, and a considerable deposit of carbon in the front combustion chamber. The passenger had a two-mile walk on the last portion of the eight-mile hill to Wheddon Cross, which is considerably more trying than Gall and Inglis would lead us to suppose. After that we went on without further trouble to South Molton, where we stayed the night. The village constable here has a mission to reform the world, and holds stringent ideas upon the time that is

The Trusty Triumph again wins the Jarrott Cup.

EASTER, 1910.

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In answering this advertisement it is desirable to mention "The Motor Cycle."

allowable for a motor cycle to stand in a street totally devoid of traffic. If he were transferred to London, the rates would go up and prison accommodation have to be doubled. The police force of S. Molton gives one the impression that it consists of five men, of whom four are superintendents longing for something to happen that would mean promotion.

A Wayside Overhaul.

Next morning was fine, and a mile or so along the road to Barnstaple I took down the engine and give it the attention that it sorely needed. Then I broke the oilpipe. I bestowed a few words of benediction upon the genius at Coventry who had ordained that that oilpipe should enter the crank case directly behind the magneto, and necessitate the removal and retiming of the latter when anything had to be done to the pipe. I drove on to Barnstaple (about ten miles) without oil, and there had a new pipe made and fitted it myself, retiming the magneto. That afternoon, after sundry

The Taw at Barnstaple. The road to Bideford is over the bridge.

lug troubles, caused by detached particles of carbon islodged during my wayside overhaul, we reached Ilfracombe. The Thursday was wet, and I took dvantage of that to fit a new B. and B. handle-bar ontrolled carburetter, of which I had failed to get elivery at Easter.

On the Friday we made our way back through arnstaple to Bideford—the furthest point of our ravels.

Here, perhaps, a few general remarks will not be miss. It is impossible to do justice in words to the cenery of this part of the world. Porlock and the Exmoor country have a charm of their own, and the illage itself is one of the most beautiful in the king-om. The combined fragrance of a Devon or Somerset illage, compounded of spring flowers, cows, and eat smoke, is a thing that one may experience and ver after remember, but never adequately describe. he rolling wastes of Exmoor, the only home in ngland of the wild red deer, the tiny gurgling trout reams, the larch-clad dales, lush green pastures in he valleys, crowded with skipping toy-like lambs and their sober mothers—for what more ideal country could the jaded city-dweller hope?

Of course, we missed a good deal of beautiful country by avoiding the Lynmouth road, but the scenery of the Exe Valley between Wheddon Cross and Bampton well repays one for the long *détour*.

Bideford, with its sister villages of Appledore and Instow, forms a little western world of its own. The gleaming whiteness of the buildings, the characteristic smell of tar and ozone-laden mud, and the ample trousers of the seafaring men and lads who lounge upon its broad boulevard quay, and, above all, its puffing little street railway, give Bideford the appearance of a Dutch or Flemish, rather than an English, town. But when you come to mount the streets which lead up from the quay—1 in 3½ some of them—the illusion passes and you are

In Devonshire once more.

On the Saturday afternoon we meant to pay a visit to Clovelly, so the passenger set off by herself, and I got the machine up the aforementioned streets by clutch slipping and the following of many circuitous back alleys. But we were doomed to disappointment, for having travelled successfully enough some five miles on our course, we came upon stones—no ordinary stones, mind you, but great aggressive rocks that would not have passed through a 12in. ring—sharp arrow heads of the Stone Age, apparently others—stones of every conceivable shape, size, and description, as they stretched from side to side of the road as far as the eye could see. With a reluctant sigh we turned back to Bideford, and did not see Clovelly. We now started on our homeward way, and reached Crediton that night. It was a splendid run, and the glories of the setting sun lighting with a hazy splendour the purple masses of Dartmoor, forty miles away to our right, gave an impression that we shall never forget. From this mid-Devon road one can see at the same time, northward, round-topped rolling Exmoor, and the wild rocky tops of Dartmoor far to the south.

Crediton we found recovering from its annual cattle fair held that day, and the streets were awash with

Westward Ho! with a Sidecar—

disinfectant, and the farmers with another liquid, taken, no doubt, purely as an antiseptic. We were well catered for, however, at the Ship Inn, and the next morning saw us threading our way through

High Street, Hungerford.

Exeter, which seemed a clean and comfortable city. We had meant to attend service at the cathedral, but, finding ourselves out on the Honiton Road without having so much as seen the cathedral, we gave up the idea.

From here to Ilminster we found the most trying section of our whole tour in the matter of hills. The gradients are not terrific, but the hills are very long and trying to an engine already overloaded. We left the London-Plymouth and Land's End route after Honiton, and followed routes 689 and 682 of the Contour Book to Andover. I think that the organisers would find this a better route than the other for long-distance trials. Shortly after passing Ilminster the worst mishap of the tour came to us—the front spindle broke. My wife and an assortment of village children groped about in the road for escaped balls, what time I took out the wheel and coaxed the cones on to a spare spindle. These were stiff on the thread, and gave a great deal of trouble, but finally the job was done about 7 p.m., just as it was coming on to rain.

Ilchester was but seven miles away, and I reckoned on stopping the night there and getting our things dried, so I did not trouble to unpack and put on my rubber overalls. We discovered two inns at Ilchester. Both the landlords regretted that it was quite impossible for them to do anything for us, "the missis" in both cases being at church. The display of a golden sovereign and the jingling of many keys in the pocket proved of no avail. I could not even have a room to change my breeches in until the "better halves" should have finished their devotions. So on we went another six miles in the rain and came to Sparkford. Here at the Sparkford Inn mine host was in the same predicament, namely, that his wife was at church, but he took us in regardless of the conjugal wrath that might fall upon his devoted head, as a consequence of his having extended hospitality to two poor soaked travellers. Here we spent the last night of our tour and right comfortable we were.

Our greatest distance in a day so far, had been a potter of about eighty miles. The Monday night saw us home in Essex with a day's mileage of 130 to our credit. We came through London at night, as I advise all others in like circumstances to do, and arrived home in the rain at 11 p.m.

Throughout our trip we experienced nothing but consideration and courtesy from road users and police, with the exception of one incident. A big limousine car, with a London number and, unfortunately, no club badge did its best to annihilate us on a greasy hill near Calne, owing to the wild way in which it was driven.

All over the West Country we seemed to be a subject

Down Devonshire way.

THE 'SILENT' INDIAN IS ESSENTIALLY A ROAD MACHINE.

ROAD OR TRACK- IT'S ALL ONE TO THE INDIAN.

Any expert motocyclist will agree that racing on Brooklands track for one hour at a speed of sixty miles per hour is a harder test on a motocycle than running from London to Edinburgh at an average speed of 20 miles per hour, for witness the failures of many who attempt long distance records at Brooklands.

Do not forget that INDIAN motocycles have received the highest awards for the past three years in the A.C.U. Six Days' Reliability Trials.

The INDIAN was a Gold Medal winner in the 1909 London to Edinburgh Run.

The INDIAN was the winner of the Cup in the Essex Motor Club's London to York and back 24 Hours' Reliability Trial, 1909.

And also winner of the highest awards in many Club Reliability Competitions on the road during 1909.

Don't forget that it is an actual fact that the machines which run so successfully on Brooklands are absolutely standard roadsters as delivered to the public.

For track work they are merely stripped of superfluous parts, equipped with gears suitable for high speed on the track, and fitted with racing handle-bars.

We remind you of these facts, as we have occasionally heard it mentioned that the INDIAN—while it may be fast on the track—is not a road machine.

The best proof that this is an erroneous impression is proved by the fact that the 5 h.p. INDIAN which went through the Six Days' Reliability Trial last year, and won Gold Medal, with the Auto-cycle Union's Seal still intact, went on to the Brooklands Track and established what is still a world's record for the flying kilometre for the 750 c.c. class, viz., 65 1/8th miles per hour.

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Now nothing exercises a greater influence in this direction than the Saddle and—

No Saddle is as certain to yield you perfect comfort as a

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Remember, every model of the Anti-vibratory Saddles and Seats which bears that name possesses features which are entirely exclusive—

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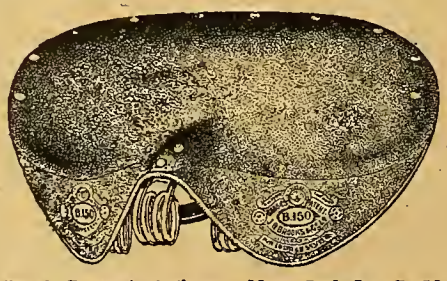
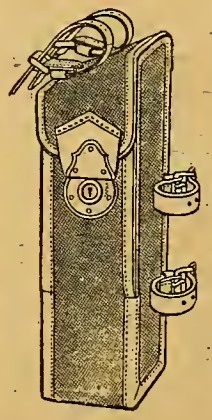


Brooks Patent Anti-vibratory Motor Cycle Seat, B150.

Talking of Tools

We would impress upon you that we have spent many years in a study of how best to carry them, and in the bags we have designed we claim to meet the Motor Cyclist's every need.

Here are two.



B9482. This bag is made of stout brown waterproof Canvas of the finest quality. Special fibre board is used in its construction, and it has fall front fitted with good lock. It holds set of tools and spares, and fits between back down-tube and rear mudguard. Its size is 10½" × 2¾" × 3½" and it can be obtained at two prices—

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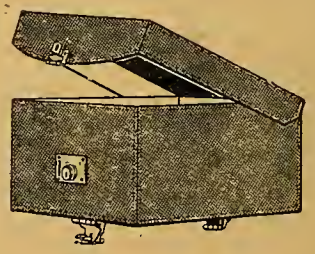

There are many more in the BROOKS BOOK, of which we will send you copy on request.

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of great wonder to the natives, animal and human. Horses shied wildly at us, and sometimes I had to stop the engine for them as often as twice or three times in a mile. Sheep and lambs courted death from exhaustion by the panic-stricken stampede in which they indulged at their first sight of us; cows fled in lumbering terror at our approach, and the local worthies held deliberative council round the Rex whenever we stopped.

A Mistake not Warranted by Appearances.

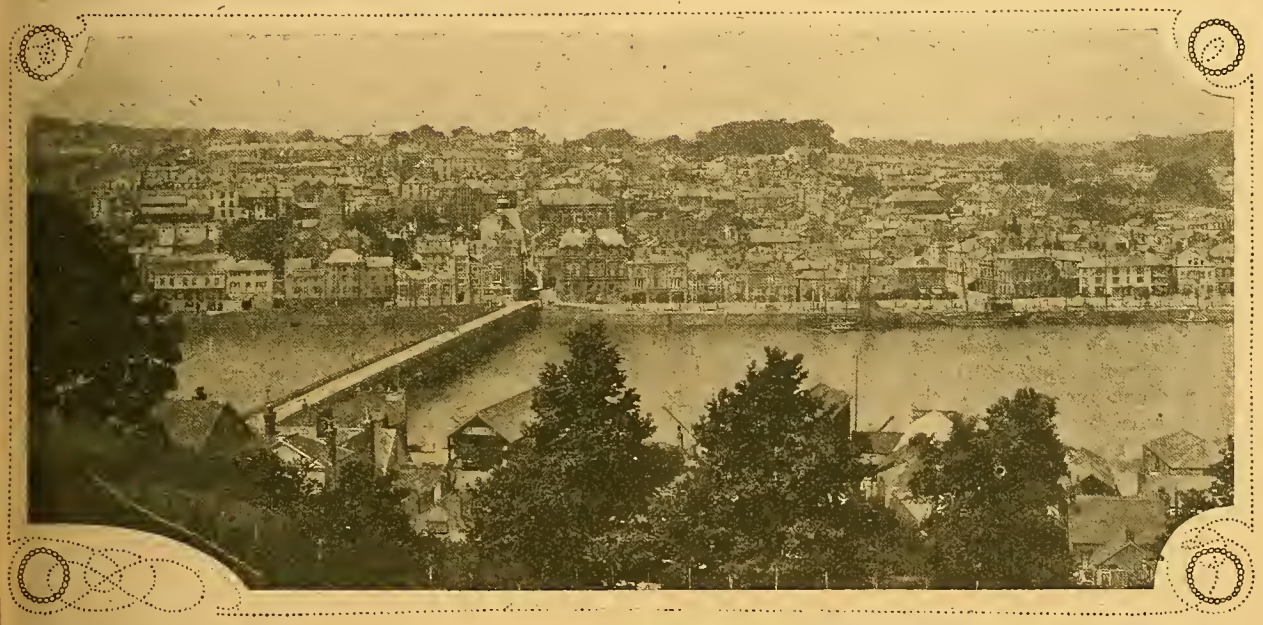
The following is a true story—the mistake, I need hardly say, was *not* warranted by my appearance at the time. Elderly yokel, pointing out to his cronies the Rex transfer on the tank: "Zee heve got his crest and coronet put on 'un."

The machine really behaved splendidly. The passenger had to be dropped more than once on hills, I admit, but considering the most trying nature of our route I think that its performance may be considered as a triumph (no pun intended) for the Rex material and design. It was painfully overloaded for its single gear, and, moreover, it was under-tyred. Only the 2in. Michelins were punctured, but of actual wear they showed hardly a trace. The steering wheel and sidecar tyres did not even require pumping up the whole time. The two breakages were to the oil pipe and front spindle. Both these details have been better designed since.

Our expenses, which worked out to less than we expected, and including very heavy bills at Marlborough and Bideford, averaged 16s. a day inclusive for the two of us. The running expenses of the machine came to between 15s. and £1, but this, of course, takes no account of wear and tear, or depreciation.

A year or more ago the sidecar question was much discussed in these columns. I have already said that mine is a Montgomery, rigid or flexible at will by a small contrivance of my own, and, taking all things into consideration, I prefer it rigid. I would never go back to a flexible sidecar pure and simple. The flexible form is faster and pleasanter to drive for both driver and passenger so long as the conditions suit it, but it is unhandy and clumsy when running very slowly or stopped, and necessitates the use of a non-skid on the *steering* wheel, and even then is a most awkward affair on tramlines or in dense traffic.

The rigid variety has its drawbacks also. It is uncomfortable and awkward in crooked winding lanes, and on roads that are irregularly cambered, and it takes appreciably more power to drive than the other form, but, in combination with the clutch, its steadiness in performing intricate movements gives it a distinct pre-eminence, while the fact that it *cannot* skid under any circumstances, alone, is sufficient recommendation. My experience is all in favour of rear wheel brakes only for sidecar work. I never used but one of mine on this tour—a foot-applied leather-lined band brake—and it sufficed to bring the 6 cwts. to a standstill on single-figure gradients.



Bideford, the most westerly point reached on the tour. The famous bridge over the river Torridge may be seen in the foreground.

For the assistance of those who contemplate what I may call a married outfit such as mine, I may say that my machine and sidecar complete cost me under £30 second-hand. Compare this holiday of ours with the conventional middle-class trip for a fortnight to the seaside, and then you will realise something of the immense sphere of usefulness that there is for the motor cycle. Some day we mean to get a new two-speed Rex and tour on the Continent, by way of showing what the British industry can do.

A Few Words of Advice.

In conclusion, I would give a few words of advice to tourists, for there must be many inexperienced readers who hope to tour this summer. Take waterproof overalls and put them on when it *begins* to rain—you never know how long it will last. Use the Contour Books intelligently, and you will not go far wrong, but do not judge your hill-climbing capabilities by the gradient in figures—these, as the books explain, are usually the average gradients, and steeper pitches are met with.

Occasional Comments

"By Ixion"

The Engine of a Speed Mount.

I rather regret to notice that motor cycling is passing through a feverish period analogous to that from which pedal cycling has already emerged. Most of us can remember when every young cyclist aped the genuine speed men by specifying a pair of ram's horn bars, a short steering head, open-sided sprint tyres, and an apology for a saddle. He might not be a speed merchant, but he had to look like one, or pass for an old fogey. Much the same is happening in certain sections of motor cyclists. Long, low, light machines, with very little silencer and lots of hooter, are the thing; if you carry a toolbag more than an inch thick you are written down as a potterer and no sportsman, because certain racing jockeys and their track equipment are the models upon which the hero-worshippers of the day mould themselves.

Well, externals do not matter so very much, and if it amuses "the boys" to ape a Brooklands record-holder in general get-up and outfit, nobody will be much the worse; but unless I am much mistaken quite a number of peaceful and secretly rather timorous clubmen are yielding to the craze so far as to purchase special speed mounts fitted with special speed engines. They do not intend to touch "sixty on the road," though they may very probably brag of having done so; they simply want to be in the fashion, and a barking, buck-jumping T.T. is the fashion in their club. I have been riding this type of mount a good deal lately, and I assert emphatically that it cannot compare with the standard touring types for ordinary use.

I am not now speaking of the machines we were so familiar with last year, carrying engines of high compression ratio, which shot away from the mark like a projectile from the muzzle of a 4.7, and which died away in a glow of plum-coloured heat within a couple of miles. I am thinking of something much more up to date.

I sat last week over perhaps the most efficient engine I have yet sampled. It was perfectly controllable, in that it would start easily and run at speeds from six to sixty miles an hour; it had quite a normal compression ratio, and showed no dying away symptoms after a long burst of speed; it was a topping hill-climber, and would roar up Sutton Bank at racing speed, and, what is more wonderful, take the same climb at a comparatively moderate speed. But it was absolutely devoid of balance. Mounted on a frame of normal design, provided with the usual springing at saddle and forks, it was misery to sit on it at all speeds. The engine is experimental, and no duplicate exists—possibly its posterity will achieve balance, as well as the other merits. I only mention it because it strikes me as being typical of a class. The average touring engine of high grade, capable of from 4 to 45 m.p.h. with a touring gear ratio, combines all the touring essentials, except the power to climb exceptional hills without adjusting the pulley.

The special speed-merchant machines marketed by some firms afford higher speed capacities and climb better, but some of them do not possess a single engine speed which is vibrationless and smooth; and this last merit is that with which the average rider can least conveniently dispense. I advise riders who have no sincere lust for speed to be content with tourist pattern engines.

We shall recover our sanity in time, just as the pedal cyclists did; and balance, comfort, and smoothness will within a few years be combined with an even greater efficiency than the best makers can give us to-day.

Belts and their Fasteners.

I was out with one of my clubs down South the other day, and witnessed the usual exhibition of futility, discrediting both makers and riders. The leader for the day tricked the fleet of riders into swooping gaily down a most formidable hill, which had to be ascended on the return journey, and quite a large proportion of the company failed to negotiate the ascent. Why? For want of engine power? Not a bit of it. To take the single-cylinders first, every one of them had an adjustable pulley, which needed opening out for the abnormal climb. Not one had provided himself with either an adjustable fastener or a spare bit of belt. The unlucky wights had to choose between shortening their belts down to a 5½ gear and going home on an ultra low gear or else pushing up. Most of them chose the latter alternative. What is the good of the maker sending out a machine or the rider starting to ride a machine with an adjustable pulley and a single non-adjustable belt fastener? In my opinion, all makers should educate purchasers by supplying a really good adjustable fastener and fitting it as a standard, or the belts should be cut down to the length required for the lowest gear, and two extra lengths of different dimensions should be added, with a half fastener at each end. Riders will then utilise their adjustable pulleys, and show up well on very steep hills in their private rides, which will do the sport more good than all the racing in the world.

Secondly, the twins. These had power enough to roar up the ascent at forty miles per hour if required, and, of course, the daredevils in their saddles meant to create a small sensation. But the machines were new; their belts were tight; the fasteners were of the light order, identical with those fitted to the tourist single-cylinders. Two fasteners and one belt snapped in these tumultous ascents, and the three riders concerned had to walk to the summit, borrow bits of belting or spare fasteners, return to their machines, and make a fresh ascent at a slower pace. The moral is obvious enough. A machine possessing an adjustable pulley ought to be sent out with all requisites ready for the immediate use of the adjustments, and most twins demand wider and stronger belts, and, above all, stronger belt fasteners.

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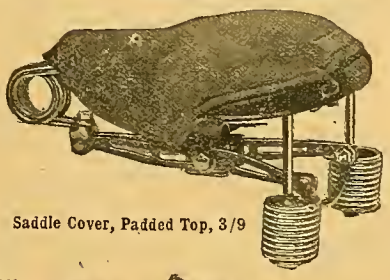

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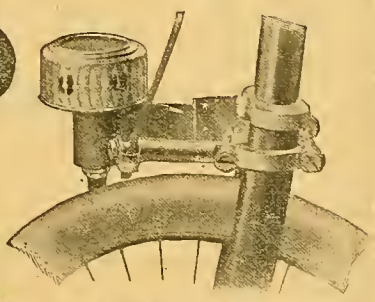

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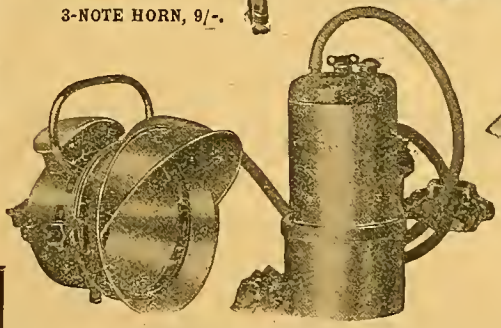

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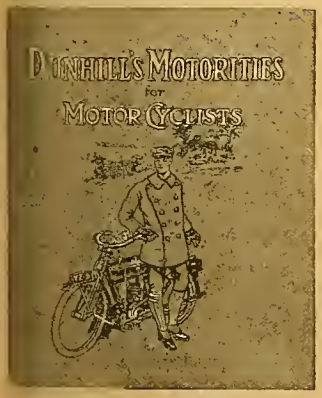

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M.C.C. INTER-TEAM TRIAL.

THE rules governing the 1910 competition for *The Motor Cycle* fifty-guinea challenge cup have now been circulated among the various clubs, and applications for entry forms are beginning to flow in to the trials hon. sec., Mr. J. Van Hooydonk. This year's competition, which is to take place on Saturday, June 18th, will be the seventh consecutive event. Last year there was a record entry of eighteen clubs, and the gathering at Daventry of competitors, reserves, and enthusiasts was believed to be the largest purely motor cycle gathering for an open event that has yet been held. In 1909, for the first time in the history of the competition, the trophy was awarded to a club making the maximum score (all six riders covering the 100 miles course without a stop). The name of the winning team—the Motor Cycling Club—is the first inscribed on the new trophy, the old one having been won outright by the Coventry and Warwickshire Motor Club.

Again the competition is to start at 1 p.m., so as to enable most of the teams to travel to the scene of the start on the morning of the trial. This arrangement was appreciated by clubs generally last year, as proved by the record entry. The A.C.U. having granted a special permit for this trial, motor cyclists are free to compete without an A.C.U. licence. The details and venue of the competition will be substantially as last year, and clubs should lose no time in forwarding their entries. At the time of writing, more than two months before the date of the competition, six clubs have already decided to compete.

Various clubs have different methods of selecting their teams, but we do not know of a better system than a preliminary trial of one hundred miles on similar lines to the Motor Cycling Club's trial of last year. A proof of the soundness of this scheme is that the M.C.C. won the cup in 1909.

Following are the rules for 1910:

1.—This cup is a challenge trophy, entitled *The Motor Cycle* Challenge Cup, of which the Motor Cycling Club are trustees and administrators.

2.—It is to be the award in a competition between teams of riders, members of, and nominated by, recognised automobile clubs, motor cycling clubs, or cycling clubs. In case of doubt as to whether any entrant is or is not a "recognised" club, the Motor Cycling Club shall adjudicate. No club may enter more than one team.

3.—If the cup be won three times, not necessarily in succession, by the team representing any one club, it shall become the absolute property of that club.

4.—Each team shall consist of six riders, at least one of whom shall drive a two-seated motor cycle with passenger attachment, such as tricar, sidecar, or quadcar. A passenger must be carried. Passengers for the two-seated motor cycles must be provided by the entrants. Such passengers shall travel and act as observers on the machines appointed to them by the officials. A passenger shall not leave his seat during any part of the competition, shall not assist the driver in any way whatsoever, and shall furnish the official in charge with a written report at the close of the competition. The joint weight of passenger and driver shall not be less than 20 stones.

5.—The competition shall consist of a 100 miles non-stop run; a circular course, to be covered four times, will be selected in the Midlands.

6.—The number of miles, up to 100, accomplished by each rider of each team without stoppage other than stoppages due to the exigencies of traffic, will be added together, and the team scoring the highest mileage thus arrived at shall be the winner. Unavoidable stoppages due to traffic must be reported, and will not count against the rider. No adjustments are permissible during any such stop.

7.—A period of not less than one hour and twenty minutes, or more than one hour and thirty minutes, must be occupied over each section of twenty-five miles; transgression of this rule over any section will disqualify the rider from scoring on that particular section. These times apply to the distance as given on the map and route card, with which competitors will be supplied, which distance must be taken as correct for the purpose of this competition.

8.—The competition will start at 1 p.m.

9.—The entry fee shall be two guineas per team.

10.—Clubs must send an entry form, duly filled in, together with the entrance fee, to J. Van Hooydonk, trials hon. sec., Spring Villa, North Finchley, N., on or before June 11th.

11.—The judges shall be three in number, one nominated by the donors, one by the Motor Cycling Club, and one by the Auto Cycle Union. The judges' decision shall be absolute and without appeal.

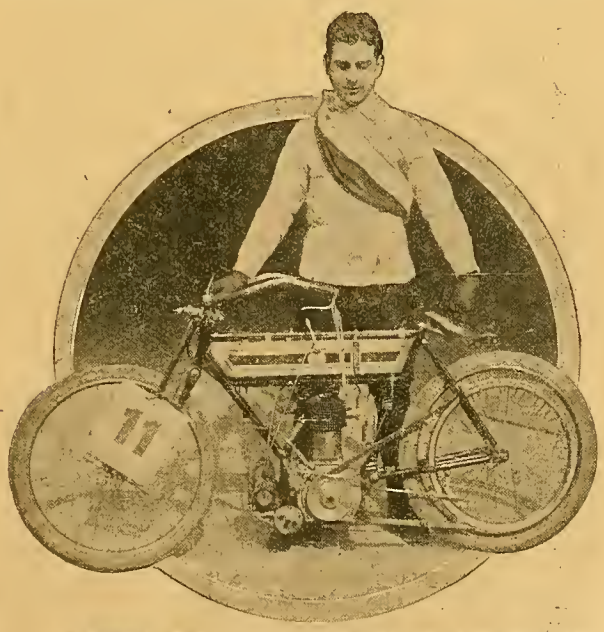
12.—In the case of a tie between two or more teams the tie shall be run off under the same conditions at a date to be fixed upon between the teams.

13.—The Motor Cycling Club reserve the right to refuse any entry.

14.—Should it be deemed advisable in the interest of the competition, these regulations may be revised or added to by the Motor Cycling Club.

15.—The Motor Cycling Club shall not be held liable for any damages caused accidentally or otherwise to the competitor's machine whilst in charge of the officials of the club.

The Motor Cycling Club will award a silver medal to each of the members of the winning team.



P. W. Bischoff, a hard worker on behalf of the Auto Cycle Union, and who is also greatly interested in the scheme for the formation of a military motor cycle corps. Mr. Bischoff occasionally delights to disport himself at Brooklands on his Tourist Trophy Triumph.

COMPRESSION: THE LIMIT.

PROBABLY but few of the amateur riders who enter for hill-climbs and similar contests would deny the superior skill of the trade riders with whom they have to compete. The majority recognise that such superiority is only the inevitable result of lengthy experience in driving under all kinds of conditions. Very many amateurs, however, wax plaintive on the subject of the special machine; they contend that in most cases they have to cope not only with highly specialised talent, but with the additional advantage given by machines expressly designed for the particular event in view. Many and various are the machinations of which makers are accused in their efforts to assist their nominees to put up creditable performances, but the count upon which they are most frequently indicted is the high compression engine, it being considered possible, apparently, to accomplish anything by its agency.

The Influence of Compression.

The crowding of fifty odd miles into the hour with a 76 × 76 mm. engine, the fuel economy shown by tiny engines whirling at turbine speeds, or a specially brilliant hill-climbing performance, all are discounted to the level of the ordinary when it is explained that the engines used were designed with very high compression ratios.

High compression is undoubtedly of immense importance, but it is a little difficult to accept its presence as the sole explanation of these various feats, particularly as their performance would in most cases have been impossible without the nicest judgment in driving.

The effect of squeezing a charge of gas before firing is simply to pack together its constituents so closely that when combustion commences the resultant flame is transmitted throughout the body of gas with the least possible loss of time, and the entire charge is thus able to be burnt within the small space of time available when an engine is running at high speed. That is the beginning and the end of the influence of compression. The charge of gas has got to be burnt within limits; the quicker the burning is carried out the better.

Slow Burning and Rapid Explosions.

Nevertheless, this more rapid combustion will not reduce by a fraction the quantity of petrol required for a stated amount of power, any more than it will enable one ounce more power to be obtained from a specified bulk of fuel. Given a cylinder full of gas exactly proportioned for perfect combustion, its burning at atmospheric pressure will yield as much heat as if it had been compressed to 90 lbs. per square inch before ignition. The difference will be merely that between a slow burning and a rapid explosion. The successful operation of the petrol engine demands that combustion shall be as rapid as possible within the limits beyond which piston speed cannot well be increased, because when a body of gas is burnt and expanded rapidly there is less time for loss of heat by radiation, and it is the object of preliminary compression to provide this necessary rapid combustion.

The Effect of Throttle Opening on Compression.

Compression ratio, however, is not the only, or even the dominant, factor in determining the pressure at which the gas is actually ignited. There are several conditions besides the purely mechanical one of piston displacement. A partly closed throttle, by reducing the bulk of gas admitted to the cylinder during a given cycle, will correspondingly reduce the pressure attained when firing takes place. Then there is the amount of heat absorbed by the walls and returned to the fresh charges, which may easily make all the difference between a healthy degree of compression and the unpleasant extreme when so much heat and pressure are produced that ignition takes place spontaneously and knocking or a backfire results.

Obviously, the slower an engine is running, the longer the flaming gases are in contact with the cylinder walls before being released by the exhaust valve, and therefore the greater will be the proportion of pressure which is dispersed in the form of heat *viâ* the radiating fins; also the fresh charges will have a longer time during which to be affected by the high temperature of the cylinder. Conversely, a fast-running engine will burn its charges rapidly and quickly release them, so that most of the waste heat will be got rid of through the exhaust valve, having little time allowed it to radiate through the walls; and the correspondingly short time occupied by the two succeeding strokes will give but a short time for the fresh gas to become heated by contact with the cylinder.

Consideration shows that these two factors not only influence the degree of compression reached by any given charge of gas, but they operate automatically so that the variations produced are just those which are undesirable if the best results are to be obtained. Throttle manipulation, by maintaining maximum compression practically only when an engine is labouring, causes combustion to be far too rapid for the slowly-moving piston to take advantage of, and the explosion being completed long before the piston has finished its downward stroke, the pressure has escaped in the form of heat through the cylinder walls and is worse than wasted.

Light Loads at High Speed.

On the other hand, in the case of an engine dealing with a light load at high speed, the throttle is probably half closed and compression correspondingly reduced, in spite of the fact that what is required is a very rapid expansion of the gases to keep pace with the flying piston. The same perversity is apparent in the

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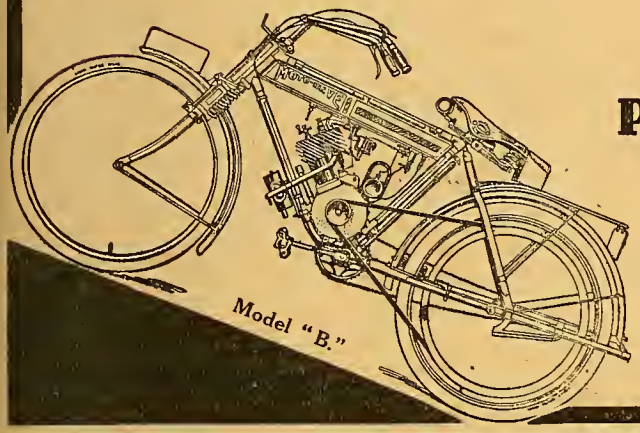
LIGHTWEIGHT.

"The man who prefers a high-powered machine for solo work under any conditions is welcome. I do not want it, nor does the average man, and it would be exceeding folly to advise the neophyte to try his 'prentice hand at it." ALEX. J. M. GRAY in "Fry's Magazine."



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The simplicity of the

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is one of its distinctive advantages. You can take the engine off to overhaul it, and every engine part is readily accessible. You can mount from the pedal, or from the kerbstone, just as in the case of an ordinary bicycle; and if, on an abnormal gradient, pedal assistance becomes necessary, the machine is so light—it weighs only 84 lbs.—that no great exertion is required, and the assistance is really effective.

It is a 1¼ h.p. motor cycle, fitted with Bosch high-tension magneto, gear driven from engine shaft. The control is all from the handle-bar.

Let us give you a demonstration.

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"All about the Singer Moto-Velo" is an interesting booklet which we send post free.

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I had no trouble at all with the tyres during the run, and after about 600 miles use are scarcely scratched and show no perceptible wear. As a non-skid they are very effective, and I have never felt so safe before on greasy roads and tram lines. Taken all round they are the best tyres I have come across.

Yours faithfully,
W. C. DAVENPORT.

Write for catalogue.

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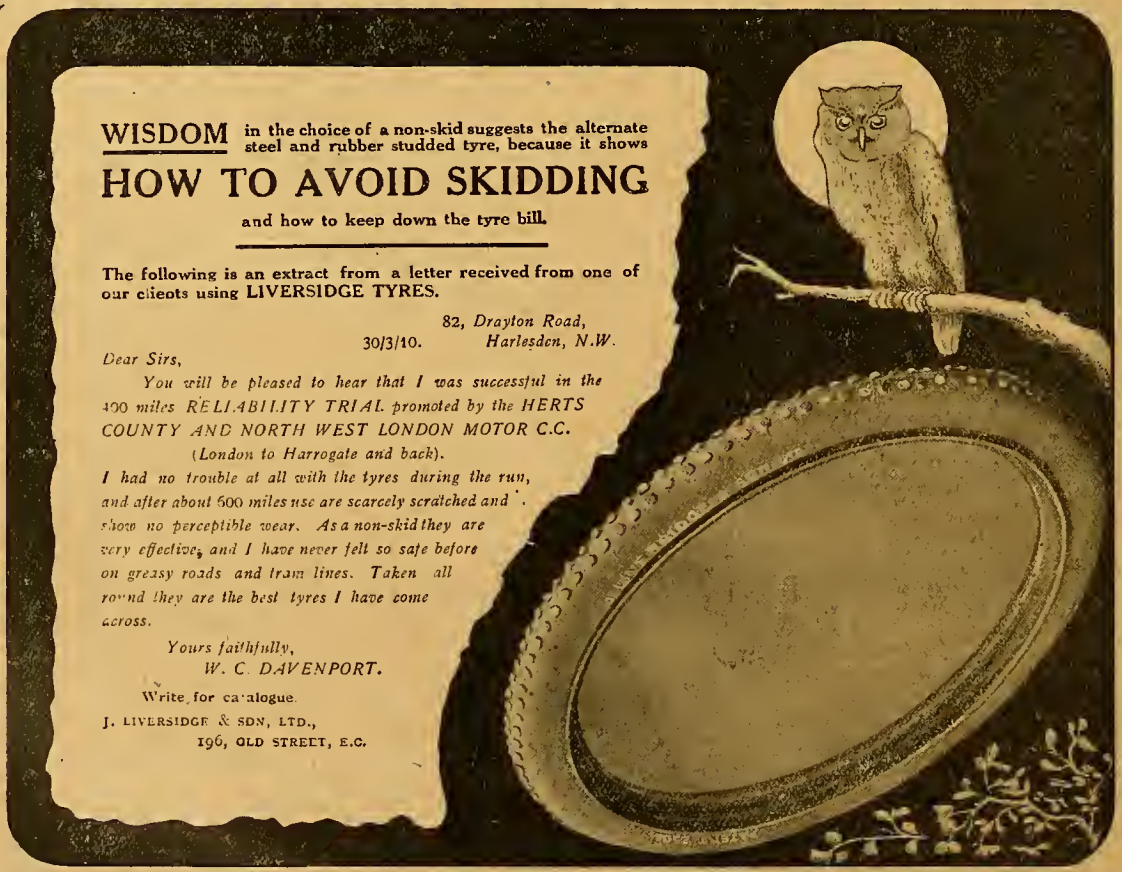


Compression: The Limit.—

behaviour of the factor of residual cylinder heat. When an engine is pounding at reduced speed uphill and every ounce of power is wanted, the course of events will be roughly as follows: The throttle being open, the engine is taking full charges, and compression is therefore maximum. The burning charges will heat the cylinder, which in turn will transfer its heat to the fresh gas, until compression becomes suffocation, and the respiration of the engine is rendered more stertorous stroke by stroke until it eventually stops, either through pre-ignition, or because the difference in the pressures of the charge before and after ignition is so small that it does not supply a margin of power to drive the machine. The process will be accompanied by an increasing amount of "knock," caused by the extremely rapid spread of flame through the charge. Briefly, the very conditions which demand a slow burning speed of the gases, and therefore a low compression, actually combine to cause a rise in the speed of combustion till a point is reached when the charge is exploded with such rapidity as to produce no useful thrust upon the piston.

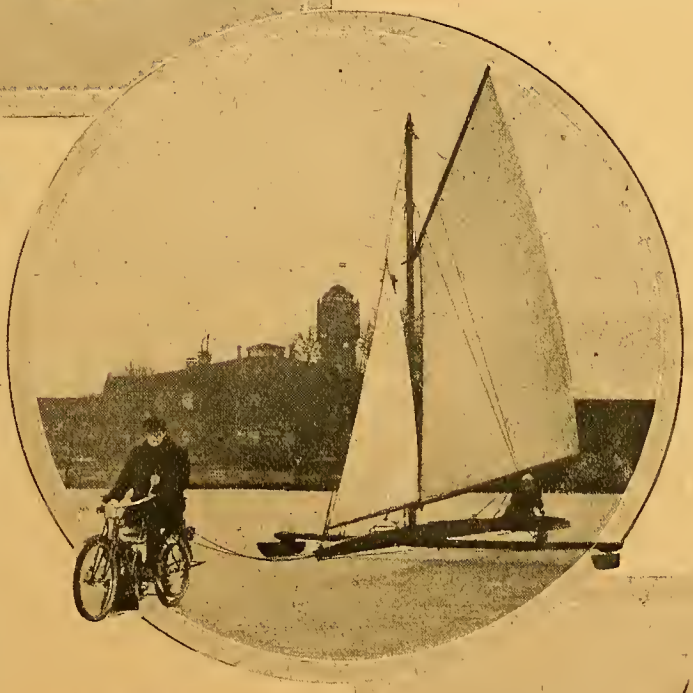
It is fairly clearly demonstrated, then, that in order to secure the greatest possible benefit from the fuel used it is imperative that combustion should progress at a speed sufficient to ensure its completion before, but not long before, the piston commences its scavenging stroke. It is evident, too, that though a high rate of combustion is an advantage from the point of view of fuel efficiency, as mechanical considerations make it impracticable to increase piston speed beyond a certain point, and rapid combustion is only of value when accompanied by a suitably high piston speed, then the limit of the one is perforce the limit of the other, and both decide the point at which raising of the compression ratio ceases to yield an increase of power. Indeed, we are told that during the experiments leading up to the production of some of the marvellous high-speed voiturette engines of last year it was discovered that useful increase of compression ceased at about 90 lbs. per square inch. Preliminary compression of the charge is, of course, purely on the principle of using a sprat to catch a mackerel, and development of the idea finds the size of the sprat increasing so much faster than that of the mackerel that presently there is no advantage in the exchange.

It being agreed that the three factors mentioned are responsible for deciding the pressure attained by the charges before ignition, there is yet another most potent influence which determines what, if any, rise of pressure shall take place between the instant of ignition and the moment the piston commences its downward stroke. This influence is spark advance, which, acting as it does to burn a portion of each charge while compression is still progressing, so that its heat and expansion

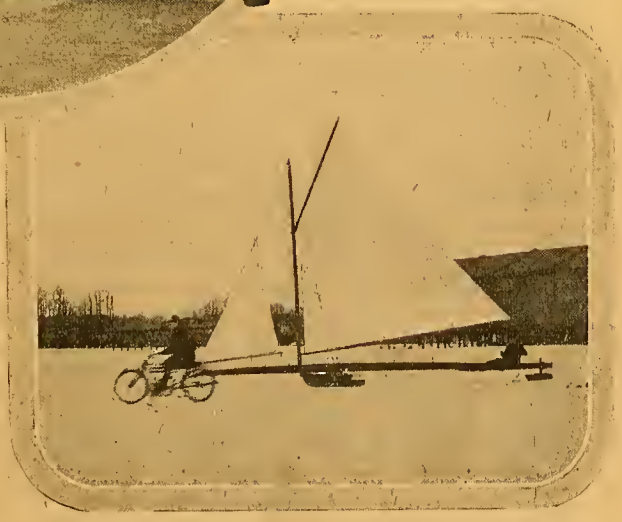
ICE YACHT *v.* MOTOR CYCLE.

AN INTERESTING TEST AT THE MOUTH OF THE NEVA LAST MONTH.

In spite of the ice, it was found that a motor cycle could with ease keep pace with a racing ice yacht.



Owing to the wind dropping, the motor cyclist performed a service by towing the vanquished yacht home again.



Getting up speed. The ice, with its hard crust of frozen snow, provides a very good riding surface, we are told.

Compression: The Limit.—

may be added to the compression given mechanically by the piston, can be made to partly compensate for the vagaries introduced by throttle variation.

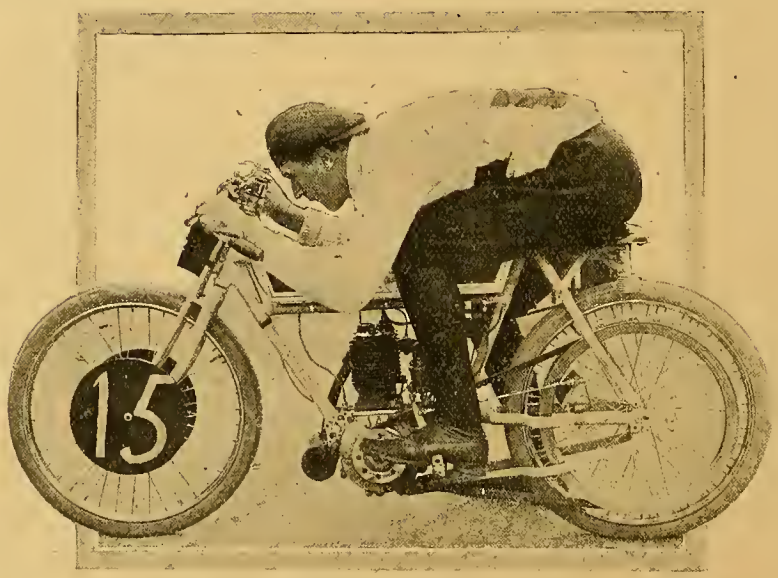
A judicious advance of the firing moment when an engine is running fast on light charges will produce the necessary amount of compression to give the rapid explosions required. On the other hand, a retarded spark will often help a struggling engine by causing the gases to burn slowly, as well as by putting off the moment when the compression of the fresh charges, expanded by the heat retained by the cylinder, becomes too much for the overloaded engine. It is difficult to over-estimate the importance of this principle of ignition control in the evolution of the motor cycle.

The points dealt with are those which affect the burning of the gases before ignition has commenced, or at least before the piston has begun its power stroke. There are other factors helping to determine the speed at which combustion progresses after commencement, such as form of compression space, size and position of spark, as well as the arbitrary one of piston speed, which tends always to create the conditions least suitable to itself. None of these matters, however, affect compression proper, and they are therefore outside the scope of this article.

To summarise, it may be taken that compression has reached a point beyond which it is unlikely to go. It is a necessary evil which, heretical though the suggestion may seem at the present time, may be discarded in the march towards perfection.

SUCCESSES ON ROAD AND TRACK.

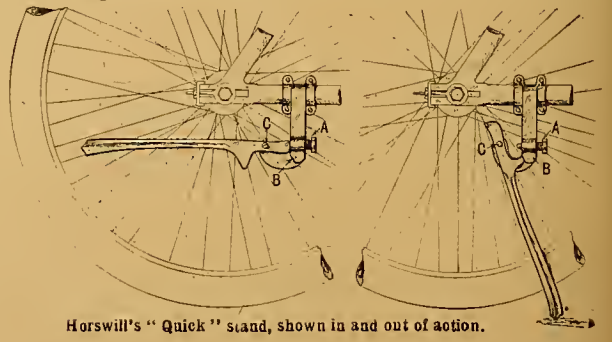
A MACHINE which, till last year, was little known is the Trump-J.A.P. In 1909 this machine was extraordinarily successful in two A.C.U. Quarterly Trials, and also at many B.A.R.C. and B.M.C.R.C. meetings, where the honours gained have been quite numerous. The machine is constructed principally on standard lines, and is a pleasing - looking mount which is particularly well designed. The frame is low and strong, and Druid spring forks are fitted to the touring model to absorb the road vibration. The J.A.P. engine is so well known that it needs no further comment. We may, however, draw attention to the extra tubes from crank case to rear fork ends. The machine is sold fitted either with Bosch gear-driven magneto or with Hellesen-Hunt battery and coil system, which Mr. McNab, the able exponent of the Trump-J.A.P., strongly recommends, especially on the racing model. The touring model is fitted with a Davison tank with that maker's patent tapless oil pump. The handle-bars are long and upturned, and are fitted with Hill's patent horn grips. With every machine a complete set of tools and spares are supplied. From stem to stern the machine is thoroughly practical and deserves popularity.



F. A. McNab, probably the heaviest and tallest racing motor cyclist on record. The photograph proves that he knows how to compress his bulk into small space.

A NEW MOTOR CYCLE STAND.

THE latest motor cycle stand which has been submitted to us is named the Quick. This stand has separate legs, which are clipped to the chain stays as shown in the accompanying illustrations, the legs being pivoted at C. When the stand is in use and the leg down, a projection on the leg fits a recess at B, which prevents side play. When the leg is raised out of action, it is held firmly in a horizontal position by the spring bolt A, which latter is automatically forced back when the leg is raised. The action of the spring causes the rounded end of the bolt to fit into a recess on the top of the leg. The stand is made by J. Horswill, jun., 74, Brook Street, Chester, who also makes a very handy tyre lever bearing the same name as the stand. This tyre lever has specially shaped single and pronged shaped ends, and is much better for detaching covers than a screwdriver or other implement as it is unlikely to damage the air tube.



Horswill's "Quick" stand, shown in and out of action.

The ROC

CLUTCH. Patent TWO-SPEED GEAR. Hand-starting.

WITH 1910 IMPROVEMENTS.

Transforms your machine into a motor vehicle of pleasure and comfort. Starts away from rest like a car.

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SOLE MAKERS OF THE FAMOUS ROC MILITARY MODELS—
4 h.p. Single-cylinder - 45 gns.
5-6 h.p. Twin-cylinder - 55 gns.

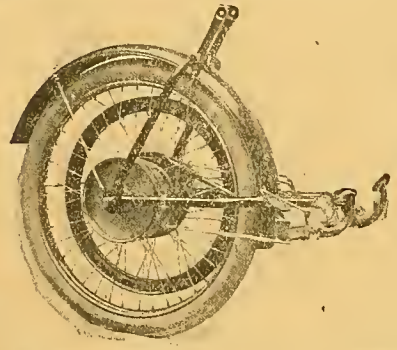
Easiest to Drive
Safest in Traffic
Best for Sidecar use.

How users talk :

March, 1910.
"The Roc two-speed has given every satisfaction on my 3½ h.p. machine. It will take sidecar and load of 22 stone up a hill of about 1 in 8 easily, which is very gratifying. It is A 1 in traffic."
C. PALMER.

March, 1910.
"Am delighted. To take hills with sidecar without having to rush them is a treat." E. NEWBOLD.

April, 1910.
"The gear is giving great satisfaction on 3½ h.p., with sidecar. Our customer is highly pleased."
BAKER BROS.



"Well up to time and running like a clock."

Such was reported of the

Ariel

3½ h.p. MOTOR BICYCLE

Fitted with

FREE ENGINE & VARIABLE GEAR

which was ridden by Mr. S. C. Perryman through the recent London-Land's End and back trial, and

Gained A GOLD MEDAL.

If you are contemplating the purchase of a reliable motor cycle, with many exclusive improvements,

Write for the ARIEL Catalogue to—

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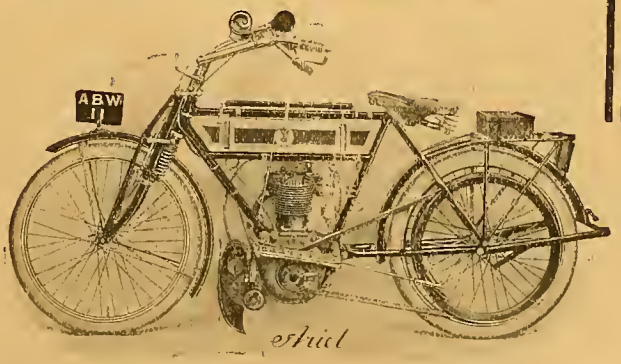
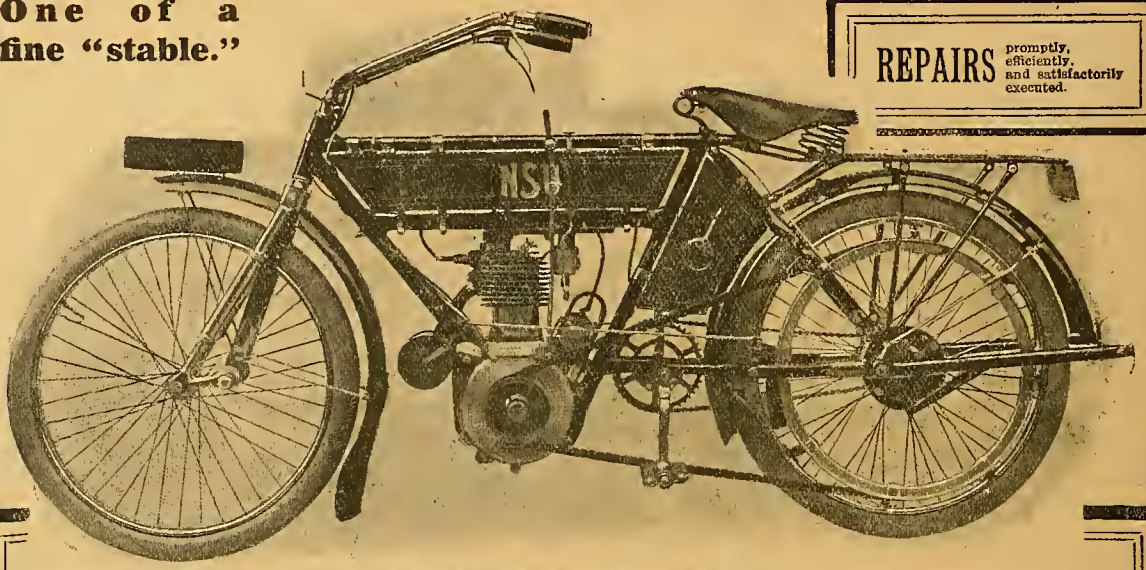


One of a fine "stable."



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This machine has 85 × 88 engine, double row ball bearings to engine shaft, gear driven Bosch magneto, handle-bar control, M.O.I.V., low frame, internal expanding brake and belt rim foot brake, spring forks. Long comfortably arranged handlebars rear half of back mudguard detachable, stand, carrier, tool case, etc. Can be fitted with two speed gear and free engine pulley at extra cost.

$3\frac{1}{2}$ Model de Luxe

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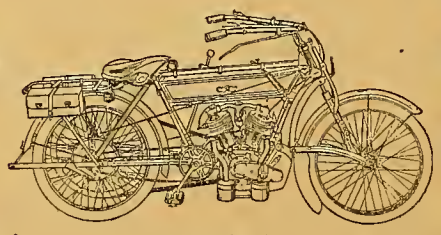
7 h.p. "V.S." GOLD MEDAL



"The Aristocrat of Motor Cycles"

again acquits itself admirably by winning a Gold Medal in the M.C.C.'s Reliability Trial — (London to Land's End and back). —

"MOTOR CYCLING" says:

S. & H. " . . He and F. C. Dee, both on 7 h.p. V.S., which are fine machine sfor not showing the dust, owing to their cream finish, went up Yarcombe and Chard hills in fine style; in fact they were some of the fastest."

LATEST SUCCESS, London W.D.M.C. Flexibility Hill Climb, Rectory Hill, Amersham, April 3rd. Class 2. Multi-cylinders, V.S. FIRST!

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THE SCOTTISH SIX DAYS' TRIALS.

WE have just received details of the regulations for this year's Scottish open reliability trial, commencing Monday, 6th June, and desire to draw the attention of English riders to a most sporting and enjoyable trip, in the hopes that more entries will be received from this side of the Border. Mr. B. H. Davies was one of the few English enthusiasts who went through the first big Scottish reliability trial for motor cycles, organised by the Edinburgh M.C.C. last year, and was greatly struck by the attractiveness of the event from an amateur rider's point of view. He considers that the following points distinguish it from the A.C.U. trial :

1. There is great freedom from vexatious regulations. The entry is smaller, the controls much longer, and the speed a trifle higher. Consequently the trial resembles a hard rider's touring run much more than a cut and dried reliability trial.

2. The scenery is infinitely superior. No part of England contains such constant and prolonged panoramas. Only Devon and Wales afford even a faint approach to the Scotch scenery, and dull intervals are much briefer and less frequent.

3. The hotel terms are exceedingly cheap, and the quarters are comfortable, as the party is comparatively small, and there is no overcrowding. Exorbitant hotel bills are the chief drawback to touring in Scotland on one's own, but in this trial the organisers arrange terms as cheap as can be obtained anywhere in England, and that at good class hotels.

In a word, the Scottish trials enable a motor cyclist to traverse the picked portions of the most sporting motor cycling country in the world "on the cheap," and with the minimum of red tape. The date—June 6th-11th— will suit many riders who cannot get off in July for the A.C.U. End-to-end. The accompanying map shows the route. The distances are as follows :

First day	173 miles
Second day	164 ,,
Third day	176 ,,
Fourth day	157 ,,
Fifth day	122 ,,
Sixth day	105 ,,
Total	897 miles

The chief hills are Rest and Be Thankful, Amulree (from Sma' Glen side), Devil's Elbow, Tomintoul, Berriedale (going north), and Glendoe (near Fort Augustus). There are to be no compulsory timed hill-climbs, but there will be an optional timed hill-climb at Glendoe, for which competitors may enter or not as they like. There will be special prizes for this hill-climb, and as the riders have to ascend the road in any case, most of them will probably have a try for the extra prizes. Altogether the Scottish trials bid fair to live up to the high reputation they won last year, as a delightful sporting outing for hard riders. About one thing there is no doubt whatever—that the Scottish trials will again afford a very searching test of the machines. The Scotch officials plump for bad hills—the English trials seldom include more than one genuine precipice.

FIRST DAY (173 miles).—Edinburgh—Stirling—Drymen (on Loch Lomond)—Arrochar (on Loch Long), lunch—Inveraray (hill-climb at Rest and Be Thankful, passing Loch Fyne)—Dalmally—Killin—Aberfeldy.

SECOND DAY (164 miles).—Aberfeldy—Amulree (hill-climb up Sma' Glen side, returning to Aberfeldy)—Pitlochry—Kirkmichael (thence crosscut of four miles to Persie Inn, where join Perth to Braemar Road)—Devil's Elbow (hill-climb)—Braemar (lunch)—Tomintoul—Grantown—Carrbridge—Inverness.

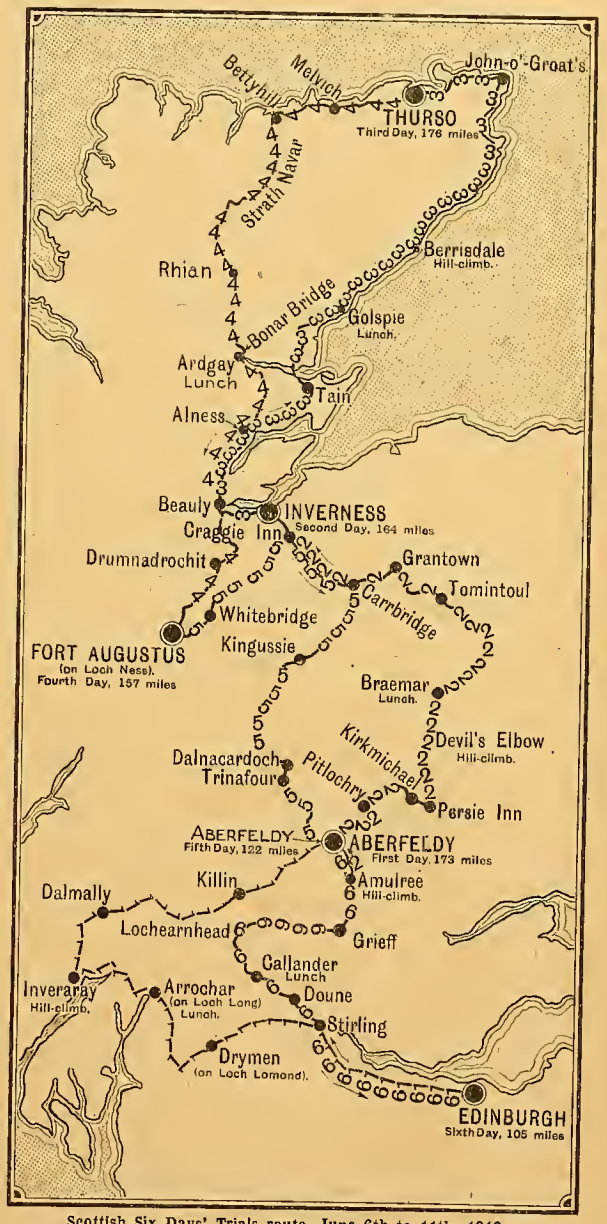
THIRD DAY (176 miles).—Ordinary End-to-end route *viâ* Beauly and Tain up to John-o'-Groat's, lunching at Golspie, proceeding on to Thurso to sleep. Hill-climb at Berriedale.

FOURTH DAY (157 miles).—Thurso—Melvich—Bettyhill—Strath Navar—Bonar Bridge—Ardgay (lunch)—Alness—Beauly—Drumnadrochit—Fort Augustus.

FIFTH DAY (122 miles).—Fort Augustus (on Loch Ness), proceed along south shore of Loch Ness over Glendoe to Whitebridge, rejoin End-to-end route at Craggie Inn, turn south—Kingussie—Dalnacardoch—Trinafour—Aberfeldy.

SIXTH DAY (105 miles).—Crieff—Lochearnhead—Callander (lunch)—Doune—Stirling—Edinburgh.

The rules are left almost exactly the same as last year, but the route has been revised to take the riders through all the finest scenery in Scotland, practically all the famous lochs being visited.



Scottish Six Days' Trials route, June 6th to 11th, 1910.

THE T.T. RACE FUND.

Further donations to the Tourist Trophy Race fund are as under : E. M. P. Boileau, 10s. ; Manx Automobile Club, £2 4s. 6d. (made up as follows : G. Drinkwater £1 1s., D. Gilmour 2s. 6d., and T. H. Moors £1 1s.) ; R. E. S. Spender, 5s. ; Vacuum Oil Co., £5 5s. ; Continental Tyre Co., £3 3s. ; Bowden's Patents Syndicate, £5 5s.

WHERE TO GO AT WHITSUNTIDE: No. 2

THE MOTOR CYCLE IN WARFARE.

LAST Thursday evening at the Anto Cycle Union and R.A.C. associates' premises. 112, Piccadilly, Captain Battine (late 7th Dragoon Guards and 15th Hussars) delivered an interesting and instructive lecture on "The Rôle of the Motor Cycle in Campaigning." Lieut.-Col. Aspinall presided

Captain Battine said there was a tendency on the part of persons ignorant of military matters to exaggerate what could be done with motor cycles in war. It was always the unexpected that happened, and not only commonsense was required in war, but special knowledge, and the special knowledge which the owners of motor cycles could bring to the aid of the authorities would be of the greatest use. One great weakness of motor cycles was the tremendous length of room which they would take up on a road, thus offering easy targets for the enemy. Field guns were now trained to such a pitch of accuracy that they could sweep at a range of four miles any given space. Hence he thought that the proper rôle of motor bicycles in war was to be attached to other units rather than be a unit in themselves. For reporting and carrying despatches the motor bicycle had been found in the recent manœuvres invaluable.

Some Duties of a Military Motor Cyclist.

In war motor cyclists could also be used to rush a bridge or hold a railway station temporarily, hold a defile, or ascertain in advance whether a particular pass was open or not. No doubt they would assist in reconnoitring, but he did not think the motor cyclist would be able to go beyond the line of his own outposts. Undoubtedly the best way in which they could be employed would be upon the lines of communication, and not as fighting machines themselves. For police work also the value of the motor cycle would be immense. Those unacquainted with military matters did not realise the great practical difficulty of moving troops in concert or getting the different units at a given spot at a given moment. The employment of motor cycles to carry orders to different generals and transmit news of what was occurring was self-evident and needed no emphasising. The real difficulty in getting troops to act in concert was felt most on the battlefield itself, and although space was now overcome by telephone, telegraph, and in the future perhaps by wireless, there was still nothing like having the verbal report from the man who had actually seen the position with his own eyes. With regard to bringing up ammunition, he did not think that motor cycles could do more in this respect than was at present done by motor car. Artillery and modern rifles consumed ammunition at such a rate that large and heavy supplies were indispensable. What could be carried on a motor cycle would practically be of no use whatever to the firing line. A great deal of the work which had hitherto fallen on cavalry would in future fall on the motor cycles. Of course, there was the question of the supply of petrol, and a system would have to be devised for storing it at proper spots and in sufficient quantities. No doubt that would be a feature of modern organisation in war. Personally he was not one of those who believed in the danger of invasion, though, of course, this country had been invaded before and might be invaded again. The probable points of invasion would be as before, the east and south coasts. He urged that we should take a lesson from the experience of the Franco-German war. In this country there should be a complete and efficient organisation so that motorists of all sorts would know where to go and what to do in case of invasion. Without such preparation all would be confusion, and the splendid material and machines at the disposal of the military authorities would be of no avail. (Cheers.)

Captain Trapmann (25th County of London Territorials), from personal experience with the manœuvres, testified to the disadvantage of motor cycles for scouting purposes on account of the noise being heard a long distance away. He referred to the hindrance to swift communication owing to troops monopolising the whole of a roadway, and suggested that commanding officers should insist on a road being kept open to the right of a marching column for fast traffic.

Mr. P. W. Bischoff endorsed the view that some knowledge of military matters was required by motor cyclists before they could be of use even for despatch work.

Mr. Summers urged that there was plenty of material for the military authorities to work upon, but he thought a new type of machine was required for military purposes. This, however, would not be forthcoming until there was a definite status for motor cyclists in the field.

Mr. Stafford urged the importance of motor cyclists being able to read a map quickly and accurately.

Mr. Hart said that from what he had seen from the Thames Valley manœuvres last year the pedal cyclists would be of no use on roads cut up by marching troops and heavy mechanically-propelled transport waggons. A specially equipped machine with puncture-proof tyres was essential.

The Lecturer's Reply.

Captain Battine replied to the various points which had been raised. He explained the difficulty of keeping large bodies of men to one side of the road. A column of cyclists would be an extremely difficult body to manage, and along a white road would present the most excellent target for modern field artillery. In fact, they would be annihilated. If the A.C.U. were made the centre for organisation he thought something could be done in the direction of organising motor cyclists for military purposes. There was no doubt that just as in civil life motor traction was asserting itself, so in military affairs motor traction must also assert itself, for the problem of obtaining a sufficient and constant supply of horses was becoming every year more difficult.

AUTO CYCLE UNION OFFICIALS.

At a committee meeting of the A.C.U. last week, the following officers for 1910 were elected: Chairman, Mr. Robert Todd; vice-chairmen, Messrs. J. Lyons-Sampson, C. A. Smith, H. P. E. Harding, and V. Hart; hon. treas., Mr C. A. Smith. The above are *ex-officio* members of all committees. The following are the A.C.U. sub-committees for 1910:

COMPETITIONS.—Messrs. J. W. G. Brooker, A. G. Reynolds, A. Sharp, F. A. Hardy, E. J. Bass, R. G. Booth, D. K. Hall, C. C. Cooke, E. M. P. Boileau, and H. B. Renner.

AUTO CYCLE LEGION SUB-COMMITTEE.—Messrs. H. A. Wildy, H. P. E. Harding, D. K. Hall, W. Cooper, and I. J. G. Babbage.

FINANCE COMMITTEE.—Messrs. E. P. Hawkins, F. A. Hardy, E. J. Bass, and H. B. Renner.

RELATIONS AND LEGISLATIVE SUB-COMMITTEE.—Messrs. E. J. Bass, F. A. Hardy, J. W. G. Brooker, H. G. Cove, and W Pratt.

REPRESENTING THE A.C.U. ON THE R.A.C. GENERAL COMMITTEE.—Messrs. Robert Todd, G. F. Sharp, V. Hart, H. G. Cove, H. P. E. Harding, A. G. Reynolds, D. K. Hall, R. G. Booth, and F. Straight (secretary).

MIDLAND MEET OF MOTOR CYCLISTS STRATFORD-ON-AVON.

On Whit-Monday next the third annual meet of motor cyclists will be held at Stratford-on-Avon as arranged at the meeting of club delegates last year. On the last occasion 150 motor cyclists gathered together, and a very enjoyable time was spent. It is hoped the number will reach 250 at least this year. A special large dining room has been booked at the Swan's Nest Hotel with balcony overlooking the river, and boats and a motor launch will be reserved. A full programme will be issued shortly, but in the meantime club secretaries who have not received particulars are requested to write Mr. R. Vernon C. Brook, Oakdene, Cambridge Road, King's Heath, Birmingham.

In our report of the M.C.C. Jarrott Cup competition on March 31st, it was stated that F. C. Dee (7 h.p. V.S.) had suffered tyre troubles. This, he informs us, was not the case, as the Peter Union tyres he used did not cause him the slightest trouble, and during the three or four years he has used these covers they have given him every satisfaction. Considering that Mr. Dee was riding a powerful twin, the length of the course, and the loose condition of the roads, the behaviour of his Peter Union tyres was remarkably good.

CURRENT CHAT

Time to Light Lamps

(GREENWICH).

April 14	7 53	p.m.
„ 16	7.56	„
„ 18	8.0	„
„ 20	8.3	„

The Lightweight Prize in the Land's End Trial.

Last week we credited A. J. Stevens with being second in the running for the lightweight prize in the Jarrott cup competition, but we now find that his Wolf engine exceeded the limit of 340 cc. W. W. Douglas comes next in order of merit to G. L. Fletcher (2¾ h.p. Douglas), R. O. Clark on the 2¼ h.p. lightweight F.N. being third.

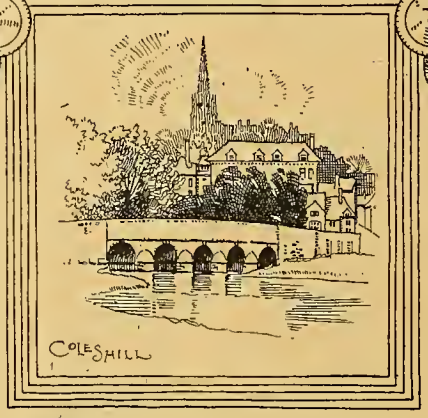
An Unfortunate Occurrence.

C. Rice-Oxley, of Shrewsbury, will have the sympathies of all motor cyclists. He was returning home from testing his twin-cylinder machine on Wenlock Edge, when it caught fire owing to the waste petrol tap turning on. The motor was totally destroyed. The rider escaped with a shaking sustained through jumping out of the saddle to avoid the flames.

The T.T. Race.

Prospective competitors in the International Motor Cycle Tourist Trophy Race on May 26th should note that entries finally close on Saturday, April 30th.

So far, the Tourist Trophy entries are represented by machines of three countries — England, America, and France. Before the list closes, we hope the entries will bear a more International aspect.



Special Features

Sydney R Jones

WESTWARD HO! WITH A SIDECAR.
Illustrated.

M.C.C: INTER-TEAM TRIAL RULES.

COMPRESSION: THE LIMIT.

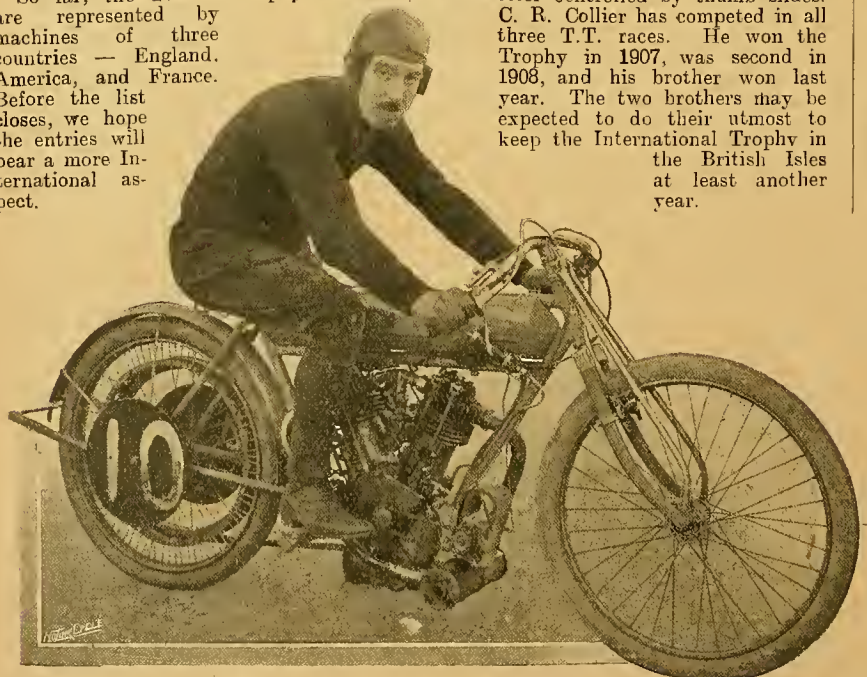
Permit.

A permit has been granted by the A.C.U. to hold motor cycle races at the Tunbridge Wells Sports on Whit-Monday.

Collier's Choice for the T.T.

Charles R. Collier, whose photograph is published below, has already decided upon his Tourist Trophy mount, and, in fact, has covered several hundred miles on it. Again C. R. will pin his faith to the short stroke engine, the dimensions of his J.A.P. being 85 by 58.5 mm. = 664 cc. capacity, *i.e.*, 7 cc. short of the limit. In design, the engine is very similar to the one his brother, H. A. Collier, used when he won the Trophy last year. It has mechanically-operated overhead valves, magneto ignition, and a Longuemare carburetter controlled by thumb slides.

C. R. Collier has competed in all three T.T. races. He won the Trophy in 1907, was second in 1908, and his brother won last year. The two brothers may be expected to do their utmost to keep the International Trophy in the British Isles at least another year.



C. R. Collier and the Matchless-J.A.P. he will ride in next month's Tourist Trophy Race. The engine has overhead valves, and the bore and stroke are 85×58·5 mm. The machine is fitted with Bosch magneto, Shamrock-Gloria 1in. belt, and Hutchinson 26×2¼in. tyres.

Inter-team Hill-climb.

F. A. Hardy, who was a competitor in the inter-team hill-climbing competition at Sutton Bank on March 26th, wishes us to point out to our readers that the reason he and other riders were disqualified in Class V was because they had entered two-speed geared machines in a class intended solely for machines with fixed gears. Mr. Hardy's intention was to use only one gear, and if required to have the change gear lever sealed. He says that, in his opinion, a two-speed geared machine should be allowed to compete against single-geared machines provided the gear lever is sealed, otherwise the additional cost of the gear may deter some riders from equipping their machines with what many regard as an indispensable accessory.

Imports of Motor Cycles.

There was a big revival in the imports of motor cycles and parts last month, as may be seen by the figures below culled from the Board of Trade returns :

1908.	1909.	1910.
Value of motor cycles imported—		
£2,998	£4,018	£4,754
Parts thereof—		
£2,614	£1,947	£6,131
£5,612	£5,965	£10,885

The import figures for the three months ended 31st March were £17,190, £13,359, and £24,797 in 1908-9 and 1910 respectively.

Exports of British Machines.

British exports show a corresponding increase, easily eclipsing previous figures for the same periods. Last month's exports were represented as follows :

1908.	1909.	1910.
Value of motor cycles imported—		
£2,463	£4,357	£7,560
Parts thereof—		
£1,858	£3,272	£2,901
£4,321	£7,629	£10,461

The rapid increase in our exports is illustrated by the under-mentioned figures for the three months ended 31st March, and it will be seen that in two years exports have more than doubled.

1908.	1909.	1910.
Value of motor cycles imported—		
£6,183	£10,876	£22,818
Parts thereof—		
£7,046	£7,720	£8,088
£13,229	£18,596	£30,906

A Good Suggestion.

Anent the discussion on the suggested curtailment of motor cycle trials, a correspondent this week suggests that the Auto Cycle Union and the Cycle and Motor Cycle Manufacturers' and Traders' Union should co-operate, the one body representing motor cyclists and the other manufacturers. Trials and competitions could then be promoted jointly.

Dangers of "hanging on."

Early last week, a pedal cyclist was badly injured by colliding violently with a car. It appears that the cyclist in question was riding behind a motor cyclist with his head down. The motor cyclist safely passed the oncoming car, but the cyclist swerved, and dashed right in front of the car, and was thrown through the glass screen. He now lies in a precarious condition. The motor cyclist was John F. Keller, of Birkenhead, and he writes that he had warned the cyclist several times.

Quarterly Trial Entries.

The following entries have been received for the Spring Quarterly Trial, which will be held over the usual course, starting from Uxbridge at 9 a.m. on Wednesday next.

W. Cooper (3½ h.p. Bradbury).
W. Pratt (3½ h.p. P. and M.)
H. Roberts (3½ h.p. P. and M.)
The Clyno Eng. Co. (5-6 h.p. Clyno).
E. A. Colliver (2½ h.p. P. and M.)
E. H. Lees (7 h.p. Indian).
E. B. Dickson (7 h.p. Indian).
B. A. Hill (3½ h.p. Kerry-Abingdon).
C. K. Wigram (5 h.p. Rex).
G. L. Fletcher (2¾ h.p. Douglas).
J. G. T. Firth (3½ h.p. P. and M.)
R. Sampson (3½ h.p. Precision).
W. A. Lockwood (3½ h.p. P. and M).
F. Phillip (3½ h.p. Scott).

Police Traps.

Police traps are in operation between London Colney and St. Albans, and between St. Albans and Redbourne, on the main road from London to Dunstable, *vid* Barnet.

FUTURE EVENTS.

April 20—A.C.U. Second Quarterly Trial.
„ 27-28—Brooklands A.R.C. Meeting.
„ 30—M.C.C. Members' Hill-climb.
May 4—B M.C.R.C. Meeting at Brooklands.
„ 4—Herts. County A.C. (motor cycle section) Open Hill-climb.
„ 13, 14, and 16 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.
„ 26 (Thurs.)—INTERNATIONAL MOTOR CYCLE T.T. RACE
„ 27—Open Hill-climb in the Isle of Man.
June 4—Motor Cycling Club second private race meeting & gymkhana at Brooklands.
„ 6-11—Scottish Six Days' Open Reliability Trial, organised by Edinburgh M.C.C.
„ 18—M.C.C. TEAM TRIAL FOR "THE MOTOR CYCLE" CHALLENGE CUP. Competing Teams: Motor Cycling Club (holders), Coventry and Warwickshire M.C., Bristol B. and M.C., Streatham and District M.C., Sutton Coldfield A.C., and Edinburgh M.C.C.
„ 25—Bradford M.C.C. Open Hill-climb.
July 4-9—A.C.U. Six Days End-to-end Trials.

The Next Brooklands Meeting.

Four handicap races have been included in the Brooklands programme for the two-day meeting on April 27th and 28th. Entries close to-day at 12 noon.

The Staxton Hill-climb.

The Auto Cycle Union has written to the clubs who organised the Staxton Hill-climb, and to the riders who took part in it, to ask for an explanation as to why they were associated with or competed in an unauthorised event.

Tenth Anniversary of the 1,000 Miles Trial.

The first one thousand miles trial promoted by the then Automobile Club took place on April 23rd, 1900. A committee has been formed to organise a celebration of the pioneer event on Friday, April 22nd, and those who took part in this trial and others who would wish to participate in the celebration should send their names to Mr. Claude Johnson, c/o Rolls Royce, Ltd., Derby. It is suggested that the celebration should take the form of a luncheon at a conveniently situated town. The motor cycles which competed in the 1,000 miles trial of 1900 were three Ariels (a quad and two tricycles)—one with trailer, one Century tandem, one Empress tricycle, one Royal Enfield quad, one M.M.C. tricycle, and one Simms tricycle.

M.C.C. Race Meeting and Gymkhana.

The second private race meeting of the M.C.C. is to be held at Brooklands on Saturday, June 4th. The skeleton programme includes the undermentioned events for motor cycles: Six handicap races, a hill-climbing competition (handicap), skilful driving competition (Mrs. Jarrott's prize), four gymkhana races, and a great sporting match. With regard to the latter, it will be between well-known racing members, and the idea is to arrange a race for a Rex, Triumph, and Indian (and others if they can be found) machines to be picked from stock.

Another interesting event proposed is a push bicycle race, one lap (handicap) If only Edge, Stocks, Jarrott, Schafer, Platt-Betts, Hooydonk, and Ilsley, who were all prominent cyclists at one time, will turn out, a good race is assured. The hon. sec. is S. H. Fry, 5, Highbury Grove, N.

J. Gibson. A. J. Moorhouse. C. B. Taylor. C. E. Bennett. D. R. Clarke. W. O. Bentley.

A group of six well-known riders of Indian motor cycles, W. H. Wells, the London manager of the Hendee Mfg. Co., standing in the centre. Of this group, Moorhouse, Bennett, Clarke and Bentley are to compete for the Tourist Trophy.

CLUB NEWS.

Auto Cycle Union (Midland Centre).

The annual general meeting will be held this day (14th inst.) at headquarters, when the A.C.U. inter-club championship will be discussed, and other business transacted.

Bradford M.C.C.

The minor climb has been postponed until the 23rd inst. on account of difficulty *re* hill. The Rex Cup 150 Miles Reliability Trial will be run on the 24th inst. over a sealed course. Previous gold medallists are barred.

Worcestershire M.C.C.

A general meeting will be held at the new headquarters, the Hop Market Hotel, Worcester, on Saturday evening next at 8.30, for the purpose of electing an hon. secretary, committee, and other officials. Motor cyclists hailing from Worcester, Malvern, Evesham, and Pershore will be cordially welcomed.

Winchester and District M.C.C.

A general meeting was held at the Tichborne Chambers on Tuesday, last week, Mr. C. E. Godwin in the chair. The opening run was fixed for to-day (Thursday), starting from the Market Hotel, Winchester, at 2.30 p.m., to Basingstoke (*via* Alresford and Alton). Tea at Basingstoke at 5 o'clock. A series of interesting events will be arranged during the summer, and a successful year is anticipated.

Middlesbrough and District M.C.C.

The first competition—a hill-climb on Burke-Brow, near Guisbro'—is to be held on Saturday next. An appeal is now made to all motor cyclists in the district to join the club, and particulars will be sent to anyone interested by the hon. sec., Geoffrey W. Liddle, 367, Linthorpe Road, Middlesbrough. The sports hon. sec. is W. A. George, 27, Nelson Street, South Bank.

Shropshire M.C.C.

The above club held its opening run to Hereford. Owing to the inclemency of the weather the attendance was rather poor, but notwithstanding the elements the few who went thoroughly enjoyed the run. The following runs have been chosen for April: Thursday, 14th inst., Llanrhaida, start 2.30; Sunday, 17th inst., Lake Vyrnwy, start 10.30; Thursday, 28th inst., Tong *via* Shifnal, start 2.30.

Sheffield and Hallamshire M.C.C.

Owing to pressure of business, J. Haslam has been compelled to resign the secretaryship of the above club. The new secretary is Daniel Bradbury, 3, Fulmer Road, Sheffield. He would like the names and addresses of club secretaries in the North to facilitate the arrangement of inter-club meets, competitions, etc. At a meeting held at headquarters on the 7th inst. it was decided to re-affiliate to the Motor Union.

Leicester and District M.C.C.

This young club has now a membership roll of forty-six active riders; it is going strong, and the weekly runs are well attended. The competition season will be opened with a paperchase to-day (Thursday), meeting at Groby Road terminus at 2.30. The members will have to follow the hares over an intricate route in the Bosworth district. A smoking concert will be held some time this month at headquarters, and Mr. Spring, hon. sec. of the Nottingham M.C.C., has kindly promised to give a lantern lecture on that occasion.

Bristol Bicycle and Motor Club.

The first of three reliability trials arranged for 1910 will be held on Saturday next, starting 2 p.m. sharp. The following is the route. Start—Stoke Gifford (Beaufort Arms), thence Hambrook, Winterbourne, Iron Acton, Rangeworthy, Cromhall, turn left top of Charfield Hill to Falfield, thence main Gloucester Road to Thornbury, Alveston, Almondsbury, Patchway, turn left before reaching fourth milestone to Stoke Gifford. The circuit to be covered three times, the last one being reversed. Entrance fee, 2s. for each of the three trials. Entries should be sent to E. J. Prosser, 1, Brecknock Road, Knowle.

York County M.C.C.

On the 17th inst. there is a run to Hull, meeting at Roundhay P.O. at 10 o'clock, and journeying *via* Hull. The consumption trial is fixed for the 23rd inst.

Southern M.C.

Club run on the 17th inst. is to Worthing; lunch, Railway Hotel; tea at Dog and Bacon, Horsham. As the handbook of the above club is now nearing completion, the hon. sec. will be pleased if any change of address, members' telephone numbers, or any information likely to be useful, is sent to him at once.

Birmingham M.C.C.

The second Saturday run of the season was held last Saturday, the venue being Rose Hill on the Lickeys. Several members went with the idea of trying their machines up the hill, but unfortunately the "law" ordained otherwise, as a plain clothes policeman and one in uniform were on the hill. Some fifteen members sat down to an enjoyable tea

Next Saturday the run is to Sudbury, *via* Lichfield. Meet, Perry Barr Station, 2.45; distance about 30 miles.

On the 17th inst. there is a whole day run to Farlow Bank. Meet, Fonntain, Hagley Road, 10.30 a.m.

Nottingham and District M.C.C.

A speed-judging trial was held last Saturday over a distance of eight miles. Competitors assembled at the Red Lodge, Fosse Road. It was decided to hold this particular event, because so early in the season few members have as yet tuned up their machines to concert pitch, and this kind of trial is a sort of go as you please event. The result was:

Name.	Machine.	Time declared previous to run. m. s.	Actual time taken. m. s.	Error of judgment. m. s.
C. R. Smith	(3½ C.C.R., Smith)	26 30	26 36	0 6
J. Fairburn	(3½ C.C.R., Smith)	27 0	27 10	0 10
Geo. Brough	(3½ Brough)	25 0	25 43	0 43
Jos. Mitchell	(3½ Triumph)	26 30	25 39	0 51
F. P. Johnson	(7-8 Matchless)	26 30	24 39	1 51
J. W. Cox	(3½ T.T. Triumph)	48 0	45 38	2 22
J. E. Trueman	(7-8 Matchless)	27 0	24 36	2 24
R. G. Toplis	(3½ Triumph)	30 30	33 50	3 20
G. W. Canham	(3½ Rex)	27 0	34 6	7 6

Pontefract M.C.C.

At the monthly meeting at the Queen's Hotel, Pontefract, on the 6th inst., it was announced that there are four trophies for competition. They were allocated as follows: Trophy by Col. Shaw (president), for an annual reliability trial to be competed for in July; Mr. W. J. Robson's cup, for a hill-climb in June; prize by Dr. Dolan (captain), for a speed-judging competition in August; and members' trophy, for a reliability trial in September.

Gathering on the occasion of a run of the newly-formed Ripon and District M.C.C.

RELIABILITY PROVED

Essex M.C. 200 Miles Run.
HIGHEST AWARD.

SPEED PROVED

M.C.C. Meeting at
Brooklands—1st.

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IN
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QUARTERLY
TRIALS,
1910.

Good Finish. Spring Frame.
Thin Radiality Fins.
Steel Piston Rings same width all round.
Valves of dropped forged steel, hardened at end.
Pipes turned over and brazed.
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Free flow of oil through all bearings.
All Case Hardening 1/16th inch thick.
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Perfection?

One constantly reads of the perfection of the modern motor cycle, and it may be granted to a few firms that workmanship and finish fall little short of it; but, respecting design and material, there is a good deal to be done yet.

Now where does this perfection lie? Is it in cylinders cast with an altogether superfluous amount of metal in the radiating fins, which, to conduce to good radiation, should present a maximum surface of metal with a minimum amount?

Is it fitting a cast-iron piston, when a steel one could, for strength, be made much lighter, which is very much required in moving parts of high speed? Or perhaps it is in fitting pistons with eccentrically-turned rings, which means that one side of the ring is much thicker than the other, so that, when the cuts are in one line, the piston is forced over to that side of the cylinder where the rings are thinnest; loss of compression takes place, and uneven wear of both cylinder and piston.

Is it in the breakage of valves, which seems to be a common defect, re which, in writing some time ago, I suggested that if valves were drop forged of tough steel, with a very small amount of carbon (as high percentage of carbon is simply asking for erosion), thus having the tensile resistance runing from spindle to valve lip unbroken, there would be less complaint, providing the horizontal planes of valve seating and valve head were truly right-angled to perpendicular planes of guides and spindles respectively; otherwise, no matter how well the valve was made, it must break?

Is it in the flanges of exhaust pipes coming adrift so commonly? This defect is always put down to vibration, which, by the way, is an excuse for many defects. No; bad brazing is the cause, for no amount of vibration will sever a soundly-brazed joint. Outside bearings or timing pinions, in some machines, get very sparse lubrication. The spindles could be drilled blind, and a small hole drilled at right angles about centre of bearing, which would ensure lubrication, and, at the same time, lighten the pinions. The exhaust valve pinion spindle, to which is attached spur wheel for driving magneto, could be drilled right through. The writer had that done, and has no complaint on the score of lack of oil. If the spindle is too small to bear a small hole being drilled, fit a ⅛in. or ¼in. Rotherham oil cup exactly over magneto spur wheel, and if bore is so large that oil runs through too quickly, choke it with worsted or piece of wire, so that oil will drop.

Do we see perfection in holes for bushing being out of alignment, the defect being dodged by boring bush eccentrically, so that ¼in. thickness of bush may be 1-16in. on one side and 3-16in. on the other? Or is it in the parts which should be thoroughly case-hardened, but which, from the wear, seemed to have only smelt some prussiate of potash—a lazy and indefensible method, only to be used as a makeshift?

One can hardly pass through a town without seeing an old Humber or Excelsior running; yet where are the 1904, 1905, 1906 machines of their contemporary makers? And what 1907 machines there are have mostly been re-engined. Time alone gives proof of material and workmanship.

Perfection must unquestionably mean reliability, and the large amount of faith both the authorities and riders placed in their machines was fully borne out by the one allowing an hour every day for a week to bility, and reliability means perfection.

NOVICE.

In answering this advertisement it is desirable to mention "The Motor Cycle."

Oxford M.C.C.

The members' opening hill-climb will be held on Saturday, May 7th, at 3.30 p.m., when the headquarters for the day will be the Unicorn Hotel, Teddington.

Sutton Coldfield A.C.

Mr. H. R. Lane having resigned the post of hon. secretary to the club, Mr. Howard Smith, "The Dingle," Four Oaks, the former trials hon. secretary, has taken up the position of general hon. secretary.

A speed-judging competition was held on Saturday last. Each competitor balloted for a ticket on which was stated the speed in m.p.h. he was to average throughout the run. The route was from headquarters *viâ* Stonebridge to the Abbey Hotel, Kenilworth. The result was: 1, W. B. Clayton (3½ h.p. Bradbury); 2, Howard Smith (3½ h.p. Triumph); 3, J. W. Leno (3½ h.p. P.M.C.)

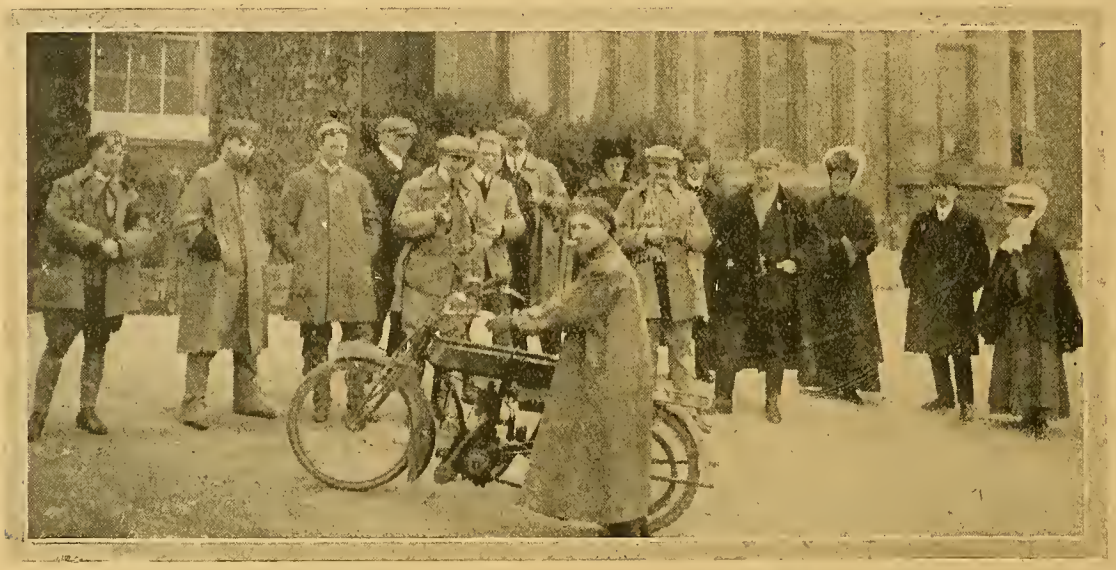
Bolton and District M.C.C.

A speed-judgment competition is to be held on the 23rd inst. to Blackpool (37 miles). Entries close on Thursday next. Gold and bronze club medals will be awarded.

Coventry and Warwickshire M.C.C.

The organisation of the motor reconnaissance, to be held on April 30th, is well in hand, and at a committee meeting on the 6th the routes to be occupied by the defending force were explained.

The club wishes to secure the assistance of as many motor cyclists as possible, and cordially invites members of local clubs within a radius of 25 miles of Coventry to participate in the event, when positions will be allotted to them as near as possible to the districts in which they reside. Intending participants should communicate with the hon. sec., E. W. Walford, 19, Hertford Street, Coventry.



Sutton Coldfield A.C. speed judging contest last Saturday. Timing in J. W. Leno, the last to finish, outside the Abbey Hotel, Kenilworth. He was third in the competition.

INTER-TEAM RELIABILITY TRIAL.

The officials results of the above trial to Harrogate and back for the Service Cup are given hereunder. Last week we announced that the Herts County A.C. were the winners of the cup for the first year, and the marks lost by the riders representing the competing teams are detailed below.

The first nine in each club (omitting Mrs. C. Cooke, who did not wish to be in the team), form the team, and the cup has been awarded on these results:

HERTS COUNTY A.C.

Name.	Marks lost.
C. C. Cooke (3½ Triumph)	6
F. A. Hardy (5 V.S.) ...	7
B. Marians (3½ P. & M.)	9
A. H. Colliver (3½ Triumph)	12
E. A. Colliver (3½ Triumph)	17
W. Pratt (3½ P. and M.)	17
E. M. Down (5 Indian)	20
Mrs. C. C. Cooke (3½ Triumph)	21
A. V. Deacock (3 Wanderer)	23
J.S. Harwood (3½ P. & M.)	31
F. G. Beard (3½ Scott)	50
H. Karslake 3½ Dreadnought)	100
W. Cooper (3½ Bradbury)	104

NORTH-WEST LONDON M.C.C

Name.	Marks lost
R. G. Goslett (3½ P.& M.)	6
A. J. Browne (9 Bat and sidecar)	7
G. Rowden (9 Bat and sidecar)	13
C. S. Westacott (3½ Triumph)	13
H. Bean (3½ Triumph)	18
G. S. Purchase (3½ Triumph)	18
W. Davenport (3½ Triumph)	21
G. H. Hollis (3½ Triumph)	27
C. M. Simpson (5 V.S.)	32
H. V. Bate (5 V.S. and sidecar)	110
C. A. Stern (3½ N.S.U.)	retired.

HERTS COUNTY A.C. AWARDS.

Silver Cups.—Messrs. Cooke, Hardy, E. A. Colliver, A. H. Colliver, Pratt, Down, Mrs. Cooke, Deacock and Harwood.

Silver Medal.—F. G. Beard.

Bronze Medal.—H. Karslake.

B.M.C.R.C. SECOND 1910 MEMBERS' MEETING.

THE following were the entries for yesterday's B.M.C.R.C. meeting at Brooklands, details of which were given on page 298 last week:

RECORD TIME TRIALS.

Class A.—C. Patteson (Moto-Rêve, 50 by 70 mm.); W Chitty (Givaudan, 70 by 70 mm.)

Class B.—H. Martin (Martin, 85 by 60 mm.); G. L. Fletcher (Douglas, 60 by 60 mm.); W. Chitty (Martin, 85 by 60 mm.)

Class C.—F. A. McNab (Trump-J.A.P., 85 by 85 mm.); A. C. Maitland (Trump-J.A.P., 85 by 85 mm.); R. C. Griesbach (Triumph, 84 by 86 mm.); F. A. Applebee (Rex, 83 by 89 mm.); R. T. Exshaw (Zenith-Gradua, 85 by 85 mm.); S. A. M. Whitham (Triumph, 85 by 88 mm.); S. Findlater (A.S.L., 85 by 85 mm.)

Class D.—H. H. Bowen (Bat, 85 by 58 mm.); W. O. Bentley (Indian, 70 by 83 mm.); C. E. Bennett (Indian, 70 by 83 mm.); W. H. Wells (Indian, 70 by 83 mm.); G. Lee Evans (Indian, 70 by 80 mm.); D. R. Clark (Indian, 70 by 83 mm.)

Class E.—G. Lee Evans (Indian, 82.5 by 83 mm.)

RELAY RACE.

McNab and Bowen; Maitland and C. R. Collier (Matchless, 85 by 58 mm.); Griesbach and Colver (Matchless); Exshaw and H. A. Collier (Matchless); Applebee and Geiger (V.S.)

ONE HOUR TOURIST TROPHY RACE.

F. A. McNab; H. H. Bowen; A. C. Maitland; C. R. Collier; R. C. Griesbach; H. V. Colver; B. Yates (Humber, 85 by 88 mm.); W. O. Bentley; R. T. Exshaw; M. Geiger; C. E. Bennett; C. Patteson; G. Lee Evans; J. Gibson; D. R. Clarke; H A. Collier; A. G. Fenn; T. A. Carter (Humber, 84 by 70 mm.); J. F. Crundall (Humber, 85 by 88 mm.)

M.C.C. EASTER TRIAL
—March 25 - 28—
London to Land's End and Back
—555 MILES—

50%

of the winners of GOLD MEDALS, as well as the winner of the TROTMAN CUP for Light-weights (Mr. G. L. Fletcher on a Douglas), used

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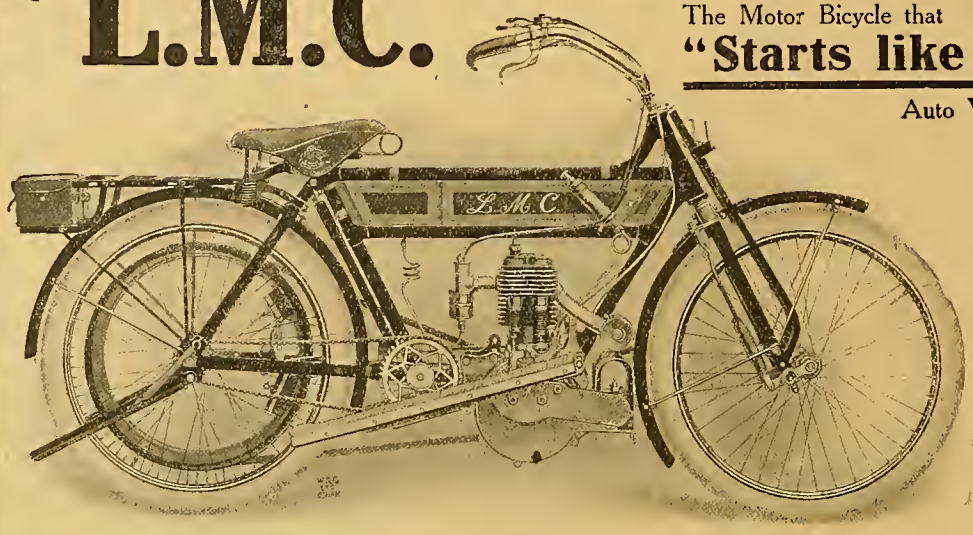
For PLEASURE or BUSINESS.

The Motor Bicycle that

"Starts like a car."



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Footboard Starter,

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85 x 88 M.O.V.

Ball Bearings.

Patent Piston.

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L.M.C. Parts for 'Original Quadrants' from stock, lists free. A few second-hand 'Quadrants' for disposal, guaranteed perfect.

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ENGINE POWER,
TIME,
TROUBLE,
MONEY,

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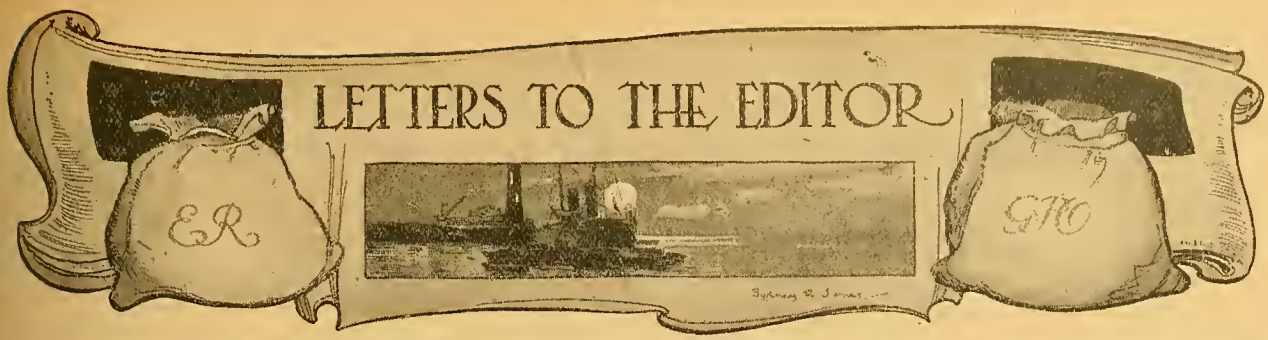
DEPOT: 103, St. John Street, Clerkenwell, E.C.

TYRES



Combining Business and Pleasure.

[4695.]—I am commercial travelling at present per motor cycle, and have ridden from North Wales down to Merthyr. My return trip includes Abergavenny, Brecon, Builth, Llandrindod, Welshpool, Chester, and home. I have saved pounds in railway fares, and find the motor cycle much faster than the railway train, and, of course, more convenient. Some of the scenery that I have passed through has been magnificent. H. GIBSON.

How to Overhaul a Motor Cycle.

[4696.]—A small detail regarding an interesting article under the above heading in *The Motor Cycle* has lately occurred to me.

The reader was recommended to have the exhaust valve seating "trued up" when a "pocket" formed after repeated grinding in. Then a bigger headed exhaust valve fitted restores the power. But the user must note if the valve cap opening is big enough to allow of a larger diameter valve being passed through it before he sends cylinder away to have alterations carried out. (Dr.) T. S. WATSON.

Motor Cycle Tyres.

[4697.]—I was pleased to see letter 4680, signed J. F. Briggs, in the issue of *The Motor Cycle* for the 31st ult., as I suffered from the same trouble five weeks ago. In seven days I had my tube cut four times, without having any weight on whatsoever through sharp spoke heads. I cured the trouble by fitting a band two inches wide, made of green baize, and made the join with elastic, which keeps the band tight and prevents it from moving when taking a tube out. Half a yard is sufficient when cut in strips and sewn together for two wheels. I have not had a puncture since fitting these bands. BERNARD LEE.

Automatic Carburetters.

[4698.]—I notice in "Ixion's" Comments of March 31st that he refers to a carburetter suitable for the "unmechanical duffer."

It may interest your readers to learn that a carburetter with one lever control was patented by me, and is at present used by the Quadrant Motor Co., Ltd.

This carburetter is, I believe, the simplest that has, up to the time of writing, been put on the market. It is so designed that it is impossible for the most inexperienced rider to get a wrong mixture, and although the Quadrant Co. fit two types of carburetters, most of their riders prefer the single lever control, and I myself at the present moment am experimenting with a single lever control carburetter which I believe, when finished, will give as perfect a mixture at all speeds as it is possible to obtain.

T. SILVER.

The Taxation Question.

[4699.]—Your correspondent in letter No. 4670 suggests that the tax on small cars is not sufficient according to the tax on motor cycles, but when we consider that an 8 h.p. tricar or motor bicycle is only taxed at present 15s., and a 6 h.p. car £2 2s., merely because it has one more wheel, I don't quite agree with him. He also says that motor cycles should be taxed according to h.p. Now the petrol taxes the large machines much more than the small ones, and I must say I think it would be better to tax all motors according to their market value if it were possible. A man who can afford a £50 machine can afford to pay more in taxation than he who pays £15 for a second-hand one. This plan would give many of the poorer class a chance in the sport, and would help to make trade better, as the old machine could be disposed of easily. I should like to see other correspondence on this matter. J. COTTON.

The Trade and the Trials.

[4700.]—If the various trials for motor cycles are done away with or curtailed as is suggested, the average amateur will have no idea at all of the capabilities of new pattern machines.

I congratulate you on your alteration of the publishing date. What we enjoy are criticisms on trials—real criticisms. HENRY KEAN.

[4701.]—The Motor Cycle Trials might be made interesting and successful both from the point of view of sport and the point of view of the trade by the adoption of some such arrangement as that suggested in your first leading article last week. The practical object of trials is to improve the breed, so to speak, of the motor cycle. This in the long run benefits both rider and manufacturer, so that there is no conflict of interest in the matter. The only question is how best to promote the trials so as to bring about the desired result. If this community of interest be not recognised, the makers, viewing the matter solely from their own point of view without reference to riders' wishes, will say that they do not consider it worth while to spend money on trials which will only demonstrate what they themselves and the public already know, namely, that their own machines are reliable and stand in no need of improvement. This is what is commonly known as advertising bluff. There is no machine so perfect as not to be open to improvement.

Now that the whole question has been reopened it may not be out of place to suggest that an opportunity presents itself for reconsidering it in the light of your suggestion, which contains the nucleus of a complete reorganisation of the system of promoting such trials. The matter might be dealt with on a broader basis than hitherto by co-operation between the A.C.U. as representing riders and the Cycle and Motor Cycle Manufacturers' and Traders' Union representing manufacturers. Trials promoted jointly by these bodies would attract competitors, and the best interests of both riders and manufacturers would be served. The best interests do not necessarily mean, as is so often presumed to be the case, the merely temporary advantage of individual firms of manufacturers. C.J.

A Puzzle or a Poser?

[4702.]—With reference to the article by "Ixion" on petrol spray blowing back, I wonder whether amongst the hundred odd machines he has tried, he has tried one fitted with a J.A.P. automatic carburetter?

I have one, and I cannot detect the slightest moisture with it. I imagine "Ixion" is aware that the J.A.P. has an automatic air supply, but no springs or valves, simply brass balls that lift and let air through the holes on which they are seated when the speed, and so the suction, becomes great enough to require more air. My trouble used to be to run the engine slow enough, but now with this carburetter I can crawl along with the throttle almost shut.

A little device is fitted which consists of a sort of slide plate that has to be set by experiment by turning a milled nut until the exact amount of petrol flows that will give the correct mixture for slow speed. It is a bit tricky to set, but half an hour's work the first ride I had did it. I have not touched it since, and engine fires regularly at a speed one would think not fast enough to overcome the compression. Also it starts easily and slowly, no rushing away as with previous machines I have owned.

CHAS. D. FITZGERALD.

[4703.]—"Ixion's" article under the above heading opens up a question on which I hope we shall have a lot of correspondence, as when reading his article I had one of a similar nature to send on to you.

I use a B. and B. 1909 3½ h.p. Fafnir, and have tried everything in my power to stop the spraying out, which in my opinion exceeds twenty-five per cent. I have now fitted a gauze over the extra air, which prevents it to a large extent, but the gauze requires cleaning at every stop. On a 2¾ h.p. Lurquin et Coudert, with a Longuemare, in the fine warm weather I used to fit a gauze cap (made like an inverted mantle) over the jet, and this prevented the spraying out, and gave me quite twenty miles a gallon more and wonderful flexibility, but, alas! unless it was a fine warm day condensation clogged it.

"Mélange" described some weeks ago how he inserted a coil spring in the inlet pipe, and I used a fan device in the inlet pipe last summer during some fine hot weather, but it clogged up and throttled the engine on cold or damp days; but when used the difference in power and mileage per gallon was wonderful. I sat in the train with a man who said he got 150 miles to the gallon with a 3½ h.p. engine and B. and B. carburetter. I average seventy, but he declined to tell me how he did it.

I have a 3½ h.p. Fafnir engine, governed on inlet, but although I have reduced size of jet till I lose power, it is very extravagant with petrol, owing chiefly to the spraying out, and overheats and knocks on a long hill or at slow speed in traffic. LN 3980.

The Transmission Question.

[4704.]—In some of your recent issues I notice some letters dealing with the question of transmission. Some of your readers coming out here would perhaps like to know which type is best suited to Indian conditions.

I have ridden both belt and chain-driven machines in this country for some years, and I most certainly consider the latter drive, as put into the P. and M., the most satisfactory here. Our extremely hot season (when roads are inches deep in grit and sand), and the following months of heavy and almost continuous rain, simply play havoc with both leather and rubber belts, no matter what care is taken of them.

Chain-driven machines are gradually being introduced, and I make no doubt will surely displace belt-drivers in the near future, especially where garages and repair shops are not.

Berhampore, India. T. H. C.

Increase of Power when Exhaust Valve is Slightly Raised.

[4705.]—From time to time one sees in your excellent paper a variety of reasons for the increase in power when the exhaust valve is slightly raised, and my experience with this phenomenon will probably interest your readers, as the solution appears to be still distant.

When first I purchased my machine I found that a light lifting pressure on the lifter trigger improved the running, and on watching the lever on the crank case that is actuated by the Bowden wire, I noticed when running on the road that this lever was dancing in such a manner as to bump up against the descending exhaust valve cotter with sufficient force to neutralise materially the closing force of the exhaust valve spring.

After fitting a small spring in tension between the lever on the crank case and the footrest in order to prevent the dancing, the engine ran much better, and pressure on the exhaust valve trigger has now no effect except of course to stop the engine. Possibly this may be the explanation of this peculiarity in other cases. W. NETTLESHIP.

Water Cooling on Motor Bicycle Engines.

[4706.]—I was surprised to read the articles by "Ailette" and "Rotator" in *The Motor Cycle* of January 3rd and 10th suggesting that designers should cudgel their brains for the best means of artificial cooling, because we (South Australians) have been riding a very successful water-cooled motor cycle of 3 h.p. for several years.

I have been riding a Lewis water-cooled motor bicycle for the past two years, and my experience is no trouble from overheating, which means we never stop at the foot or part way up a hill to allow our engine to cool, neither have I ever had an inlet or exhaust valve break.

You will note on page 29 of the Lewis catalogue, a copy of which I enclose, a certificate from the Automobile Club of South Australia for the annual hill-climb run on the R.A.C. formula. This hill is about two miles long, has twelve severe bends, and for a short distance a gradient of 1 in 4½. I may add that some of the best British and Continental machines competed in the same competition.

No doubt a water-cooled engine is of more advantage to us than to you, as our summer heat is usually fairly high. The average heat for eight days, viz., from February 13th to 20th, was 101.5 Fahr. in the shade. Our hills on the main roads are usually also severe. On the Mount Barker Road in a distance of twelve miles from Adelaide the rise is over 2,000 feet, and yet I can travel this road on the hottest day without overheating of the engine.

I have no interest in the Lewis Cycle Works otherwise than a satisfied client. ALFRED MOYLE.

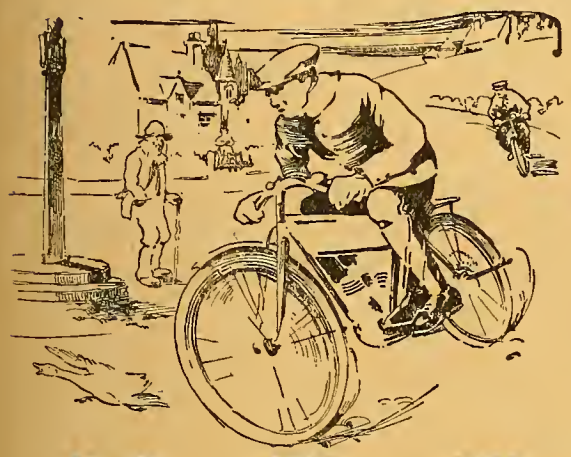
Northfield, South Australia.

[The Lewis motor bicycle is fitted with a neat looking single-cylinder water-cooled engine. The water tank and radiator are arranged saddlebag fashion on the forward part of the petrol and oil tank, and the water circulates on the thermo-syphon principle.—ED.]

The Northamptonshire M.C.C. opening run of 1910 to Edge Hill, Warwickshire.

CLINCHER

MOTOR CYCLE TYRES.



RESILIENT. SPEEDY. SAFE.

These famous Tyres are made in four patterns but the

CLINCHER RUBBER-STUDDED TYRE

OR THE

DREADNOUGHT CLINCHER

are particularly recommended for their remarkable non-slipping and good wearing qualities, making them

THE IDEAL TYRES FOR WINTER WORK

Write for unique Catalogue, which will give you all particulars.

THE NORTH BRITISH RUBBER Co., Ltd., CASTLE MILLS, EDINBURGH.

N.S.U. TWO-SPEED GEAR PULLEY.

FOR N.S.U. MACHINES

¶ The two-speed gear (illustrated) is specially designed for use on N.S.U. motor cycles, to which it can be fitted easily and without any alteration. You simply detach the ordinary pulley, substitute the two-speed gear, and the job is done.

Price

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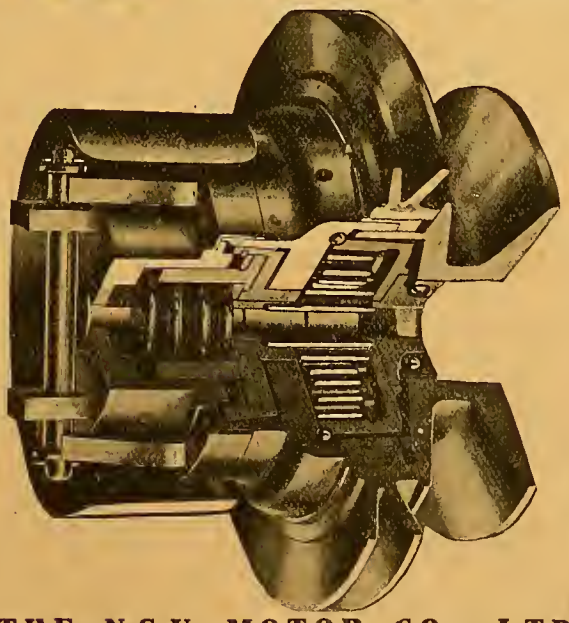
Write for Pamphlet.



FOR TRIUMPH MACHINES

¶ We stock a suitable two-speed gear for Triumph machines. This can be fitted to the engine shaft in place of the ordinary pulley. Made in two sizes, 4¼in. and 4⅝in. for ⅞in. belt. This two-speed gear is also SUITABLE FOR MANY OTHER MOUNTS.

Price

£6 : 15 : 0

Write for Pamphlet.

THE N.S.U. MOTOR CO., LTD.

A.J.W

Offices and Showrooms:
186, GT. PORTLAND ST., LONDON, W.

Goods and Repairs:
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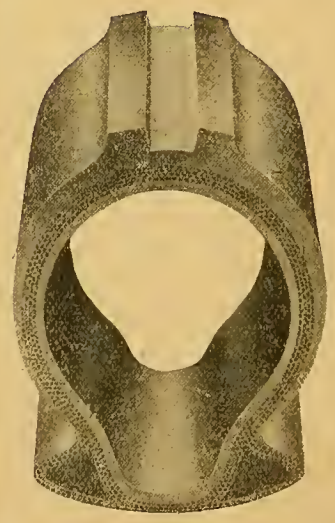
Peter Union

MOTOR CYCLE TYRES.

Well-known Riders' Opinions.



Twin-ribbed Type.

F. C. DEE, Esq., writes March 23:

"I have used P.U. for last six motor bikes, and the only time I had to retire from a competition was through continual bursts of outer cover of one other make I tried. Your tyres took me successfully through London—Edinburgh run, London—Plymouth, 1,000 miles trials—(to say nothing of two extended tours in France), without so much as pumping during the various runs."

VIVIAN OLSSON, Esq., writes March 30:

"I am very pleased with the twin-ribbed tyres you supplied me with for the London—Land's End and back ride of the M.C.C.

"I think the tyre is unusually fast and comfortable taking the weight and strength thereof into account. It is one of the most comfortable tyres I have ridden.

"Beyond two small nail punctures, which after all is a matter of luck, they gave no trouble whatever."

J. HATHWAY, Esq., writes:

"I must congratulate you upon the durability of your twin ribbed motor cycle tyre.

"I have used various made tyres during the six years I have ridden, but can fairly say none has given me such satisfaction. During last season and all through the winter I have ridden your tyres on a 5 h.p. Twin Rex without the unpleasant experience of side-slipping or punctures.

"I have recommended these to several of my friends and they form the same opinion as myself."

A. VICTOR DEACOCK, Esq., writes April 4:

"I have much pleasure in informing you of the behaviour of the two Twin-rib Peter Union tyres with which you supplied me last September. Up to the present it is impossible to detect any more wear on the cover fitted to the back wheel than the front, although these have now done nearly 4,000 miles.

"I have used these covers exclusively on a Wanderer motor cycle which you know is not a slow machine by any means.

"In conclsuion, I may mention that I shall most decidedly continue to use these covers, as up to the present I have not had a single puncture of any kind."

The Twin-ribbed Type—illustrated—has become extremely popular. In addition to being fast, comfortable, and durable, the corrugated tread forms a most effective non-skid. Unequalled for single and twin-cylinder machines.

Write for Booklet "Peter Union Motor Cycle Tyres."

THE PETER UNION TYRE CO.,

BIRMINGHAM:
160, Corporation Street.
Telephone—No. 5338 Central.
Telegrams—"Pneupeter, Birmingham

LONDON:
190-2, Great Portland Street, W.
Telephone—No. 2433 Gerrard.
Telegrams—"Pneupeter, London."

MELBOURNE.
235, Flinders Lane.
Telephone—1217 City.
Telegrams—"Pneupeter, Melbourne.

A Suggestion from a Motor Cyclist in Mexico.

[4707.]—As a reader of your paper for the last four years in England, and now out here (where it seems even more interesting), I wonder if you could find room for the following in your correspondence columns.

It has always seemed to me that the exhaust opening for motor cycle engines is never large enough, so I made the following experiment: I timed both m.o. valves as exhausts, and fitted an a.i.v. into one of the valve caps, and provided an extra exhaust pipe, and the difference in power was most marked, and it was impossible to overheat the engine. It also has the advantage of only costing a very little. Let somebody try it in the hill-climbing competitions or at Brooklands, and he will be surprised. Also one can have a higher compression without overheating.

There are a few motor cycles out here, mostly four-cylinder F.N.'s, some lightweights of the same make, a few Indians, Peugeots, and I saw one Humber. There are very few roads, and they are very humpy.

Mexico. P. H. T. HOARE.

Two Tried Tips.

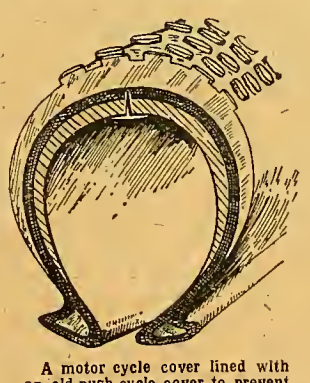
[4708.]—I offer for the benefit of your readers two tips which I have for the last year seen doing excellent service on a heavy motor cycle with sidecarriage, also on a tricar:

First—Belt Stretching and Breaking.—This has been entirely overcome in a most simple manner. The V belts used were ordinary three and four-ply leather, usually called low-priced variety, one ⅞in., the other 1in. Two ordinary ½in. pitch pedal cycle chains were procured and a gross box

The belt tip mentioned in letter from J. Copland.

of ⅝in. screw nails, round heads. These chains were placed round the outside centre of the belts, and secured by a screw every three links or so, the first link at each end being included with the belt fastener bolt (see sketch).

A Tyre Tip.—Recognising that even the best motor cycle covers are liable to puncture from a hundred and one metal objects, not to speak of thorns, the writer has resorted to the following preventive, which does not to any marked degree destroy resilience nor slow the pace. The tyres or covers treated are 2¼in. by 26in. Each was lined with an ordinary pedal cycle outer cover of comparatively smooth variety, the size for above, 26in. by 1¾in., the beads or wires cut clean off, and ¾in. cut out of the circumference. These are squarely fitted inside the motor covers by about one dozen very small artists' drawing pins with thin flat heads (see sketch).



A motor cycle cover lined with an old push cycle cover to prevent punctures.

A very cheap class of cycle cover serves the purpose, or even pretty well worn cycle covers. The writer is perfectly aware that this is perhaps ancient practice, but ninety-nine out of every hundred motor cyclists do not try the plan, but spend time and patches instead. J. COPLAND.

A Protest against the High Prices of Tyres.

[4709.]—When is the rise in the price of tyres likely to stop? Who knows? It seems to me that manufacturers of rubber goods are reaping unreasonable profits. The big dividends that some tyre manufacturers pay yearly prove that lower prices could be charged for covers and tubes. These high prices cannot stand for long, and it is my firm opinion that great harm is being done to motoring generally, and hundreds deterred from joining the ranks. I know two friends who were on the point of buying new motors but the high prices of tyres frightened them. Tyres are the chief source of expense and worry in connection with motoring to my mind, but people will not stand continual replacements at high figures for ever. Once bitten, twice shy, and rubber manufacturers would be well advised to go into the matter of prices at once. What with the increased tax, high prices for petrol, and other incidental expenses, I am honestly considering whether to give up motoring altogether, or to revert to the more economical motor cycle. I have just given up a car solely on account of the expense and the trouble with tyres, and I have heard of others doing the same. The remedy is in the tyre makers' hands. D. C.

Lightweights v. Heavyweights.

[4710.]—A somewhat interesting discussion has been going on week after week in your columns on this subject. I have hesitated to take part in the controversy, as it seems to have taken rather a personal tone. The evolution of the motor bicycle is, despite the opinion of a somewhat hide-bound section of manufacturers, still in an indeterminate stage. When in April, 1904, I started the first of the 60,000 miles of motor travel which I have experienced, the form of the motor bicycle which I then bestrode was absolutely different from that of the little twin which now carries me, although the nominal h.p. was the same.

Since then I have ridden singles, twins, and four-cylinders of high and low power. My work necessitates day and night riding summer and winter in a hilly county where even the main roads are in such a condition that £60,000 has just been voted for their repair. Under these circumstances handiness and easy starting are of more importance than speed, and therefore I have found the machine I have ridden just over a year the most satisfactory investment in the motor cycle line that I have ever struck. I refer to the 1909 Douglas with ⅞in. belt rim and adjustable pulley.

On this I have covered 11,536 miles in twelve months with the consumption of three gallons of D oil (Société de Colombes) and 104 gallons of petrol, including that used for cleaning, etc. These figures are not guessed. With the exception of 423 miles the distance covered has been on local roads, where every foot is known to me, and my mileage has been entered up daily. I can start my machine on 1 in 25 with a push or two on the ground on each side when seated in the saddle, and as I am on the wrong side of forty and weigh over fourteen stones I have fitted a step, and can mount by the step on any gradient under 1 in 15. I certainly could do with an emergency second speed for heavy pitches (1 in 6 to 1 in 9) in the winter, but rarely find the need in the summer.

In conclusion, I would suggest to my fellow motor cyclists that the various classes of machines now on the market fill certain requirements, or they would not find purchasers. The machine which runs on for a day at a time at a speed sometimes touching fifty-five miles an hour, and rarely below twenty, would be of no value to me, as there are few roads where over legal limit is safe or comfortable, while many journeys necessitate over half a mile of cart track or a mile of open downs, often in the dark. On the other hand, if I were a despatch rider I would prefer the fastest machine made that would give the least chance of a skilful shot at the running deer bowling me over.

I am not writing this letter for the purpose of puffing Douglas Bros., but because I think it right where others have given their experiences of machines ridden a few hundred miles to state what a lightweight (for anything under a hundredweight is a lightweight) and a heavy man can do in a difficult county in a continuous twelve months' riding in the course of professional work.

CHAS. L. PATTERSON, M.B., M.R.C.S.

SUMMARY OF CORRESPONDENCE.

Will L. C. Cuffe send his address, not necessarily for publication, but as a guarantee of good faith?

EXPERIENCES WANTED.

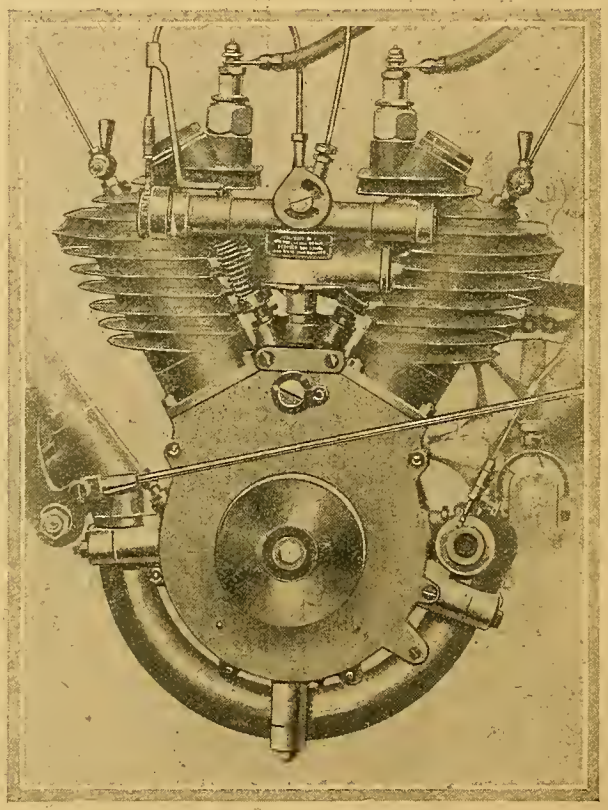
"T.E.G." (Yorkshire) would be glad of owners' experiences with the Lowen sidecar.

"E. S." (Derby) would like users' experiences with the A.S.L. motor cycle, and especially as to the comfort of the air springs, and if they are thoroughly reliable.

"V. A." (Hampton Wick) would like an amateur rider's opinion of the 1910 Triumph plate clutch. On what gradient will it start the machine, and is it useful in traffic?

Improvements in the Royal Enfield Lightweight.

MOST of our readers will remember the introduction at the last Stanley Show of the Royal Enfield twin-cylinder lightweight, which was described and illustrated in our show numbers. Since that time the Enfield Cycle Co., Ltd., has steadily progressed with the manufacture of its motor cycles, and these machines are now being turned out in considerable numbers. When we last visited the works a week or so ago Mr. J. W. Davis, the managing director of the company, showed us a shop full of these well-designed and excellently constructed lightweight machines which were ready for despatch to customers. The Enfield Cycle Co., Ltd., has on its books an enormous number of agents both at home and abroad, who are all keenly interested in the latest production of the firm—an article which is certain to add to the very excellent goodwill already enjoyed by this old-established concern, which has always borne a reputation for good workmanship, material, and design, and an honest desire to produce nothing that will cause dissatisfaction among its wide *clientèle*.



The compactly designed and beautifully made V twin-cylinder engine fitted to the Royal Enfield lightweight.

The only British Private Testing Track.

Everything possible has been done to ensure the machines giving satisfaction when they are delivered to customers, as we saw quite an army of testers tuning up the machines which had been handed to them from the finishing shops. In addition to that, and before going on the road for a final test, the company has built its own private testing track at the rear of the works; this, we believe, is the first track owned by a British firm of motor cycle manufacturers. We reproduce on the next page a picture of this midget motordrome, whereon is depicted a team of testers going through their daily occupation of encircling the track on motor bicycles preparatory to taking them on the road. The testing shop is close alongside the track, and after machines have been run for a short time on the stand to ascertain that all is in order, they are taken on the track to test the flexibility of the engine, acceleration powers, etc. If the track test proves satisfactory, the machines are then taken for a final run on the road and tried on some of the extremely stiff hills which abound in the neighbourhood of Redditch.

We had a short spin on one of the new models, and found it to be speedy, considering its power, and particularly quiet. With a ten to eleven-stone rider in the saddle the machine takes a gradient of about 1 in 8 without pedal assistance—in fact, we saw one climb a particularly steep hill near Beoley Cross, which it romped up without any difficulty whatever.

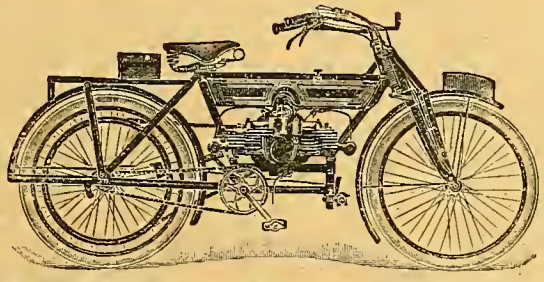
To return to the actual machine, since it was described and illustrated in *The Motor Cycle* several improvements have been made—notably the pedal for the belt rim brake is now pivoted on a separate bolt attached to the frame just behind the bar carrying the footrests. A fall, or skid, even if the footrest be bent, has no effect on the working of the brake. It may seem surprising, but it is nevertheless true, that the paraffin pipes and pump which were fitted as a refinement—and one which we should have thought would have appealed to all motor cyclists—have not proved as satisfactory in use as one might at first imagine.

Some of the Recent Additions.

In the hands of an expert rider or anyone who understands the running of the machine, the paraffin pipes and pump are doubtless a great saving of time and trouble; but novices have been known to leave the taps partly open, with the result that the engine has overheated. In consequence the paraffin pipes and pump will shortly be dispensed with and a small oil tin provided for injection of paraffin through the compression cocks. The latest innovation in connection with the rear wheel hub strikes us as a great advance. Everyone knows how troublesome a free-wheel clutch can become on a dusty or muddy road. The Enfield Cycle Co. has designed and made a special hub for motor cycles, the free-wheel mechanism not being contained, as usual, in the sprocket. To obtain the free-wheel action and retain the pedalling gear for starting and assisting the machine up very steep hills the back hub is provided with a coaster mechanism, which allows a free-wheel action, but no back-pedalling brake. This coaster or free-wheel mechanism is contained in the barrel of the hub itself, and it cannot become clogged with dust or mud, nor can grit or dirt affect its wearing qualities, as there is no place for the dust to enter. Between the chain wheel and the hub a dust-excluding cap is fitted. This method of obtaining a free wheel and pedalling gear without the drawbacks of an ordinary free-wheel clutch is one that all

THE

DOUGLAS



Engine, Bicycle, and Tyres made in England.

which was admittedly the most successful Lightweight in 1909, winning numerous Cups and Gold Medals in all kinds of competitions, continues its success in 1910 by winning

MR. PERCY TROTMAN'S

SPECIAL CUP

AND

Five Gold Medals

IN THE

London to Land's End and Back

COMPETITION.

No other make gained more than three gold medals. **DOUGLAS LIGHTWEIGHTS** were 5, 8, 13, 14, 15, showing marvellous consistency and reliability of the twin opposed engine.

Mr. G. L. Fletcher gained Mr. Trotman's Cup for **BEST PERFORMANCE** by Light-weight, coming in Fifth, and beating thirty competitors riding machines up to 7 h.p., over exceptionally severe course of 555 miles. Only varied 4m. 25s. from schedule; best performance by heavy-weight, 2m. 9s.

We claim that the above performance once more proves the equality of the Douglas Lightweight to machines of greater power and weight without their corresponding disadvantages.

DOUGLAS BROS., Kingswood, BRISTOL.

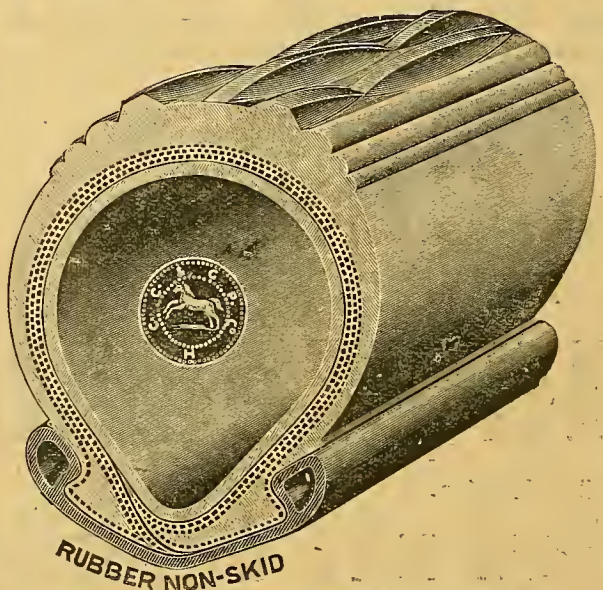
Or London Office: 336, Goswell Road, E.C.

In answering this advertisement it is desirable to mention "The Motor Cycle." A27

THE FAVOURITE TYRE
WITH MOTOR CYCLISTS IS THE

Continental

RUBBER NON-SKID.



Special wired on Rubber Non-Skid M/C Tyres for F.N. Motor Cycles.

SPECIFY THIS TYRE ON YOUR NEXT MOUNT.

Brooklyn, Bolton Gardens,
Teddington.

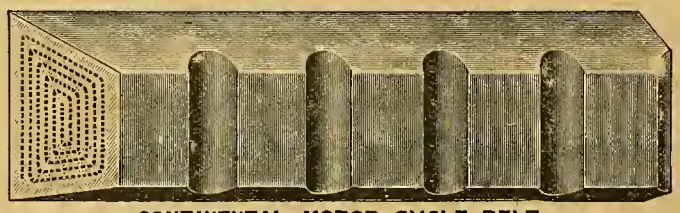
Messrs. The Continental Tyre & Rubber Co., Ltd.

Dear Sirs,

I wish to write you these few lines to let you know how very pleased I am with the Rubber Non-skid Motor Cycle Tyres you supplied me with. I have now covered about 6,000 miles and the treads show very little wear indeed. As a Non-skid it is perfect, and I strongly advise any one who uses a motor cycle, for hard work, in all weathers, to use no other tyres.

Yours faithfully,
G. BIANCHI.

HAVE YOU TRIED THE NEW IMPROVED GROOVED MOTOR CYCLE BELTING.



CONTINENTAL MOTOR CYCLE BELT

Illustrated Booklet Post Free.

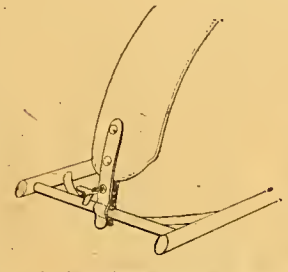
Continental Tyre and Rubber Co. (Gt. Britain), Ltd., 102-108, Clerkenwell Rd., London, E.C.

In answering this advertisement it is desirable to mention "The Motor Cycle."

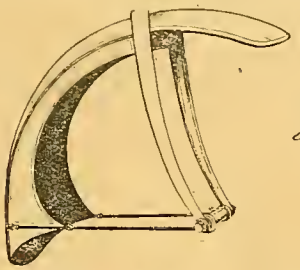
Improvements in the Royal Enfield Lightweight.— motor cyclists will recognise as an excellent feature, free-wheel clutches being so liable to become clogged on a motor cycle unless provided with some sort of dust-excluding device or protector.

A notable improvement to the front wheel is a metal splashguard. This consists, as will be seen by the illustration, of two curved metal sides, which are rolled on to the ordinary mudguard during the process of manufacture. Near the mudguard stay the splashguard is swept forward, and below the stay back again to the mudguard, so providing a very efficient protector, which should keep all mud, wet, and dust from the rider's feet and the engine. The exhaust valve lifter wire is now provided with an adjustment, which enables stretch in the cable to be taken up, and the stand is provided with a spring clip attachment, which permits the stand to be kicked down and up. The clip, which is adjustable by a wing nut, is both simple, neat, and effective, and holds the stand quite firmly, no matter if the machine is ridden on rough roads.

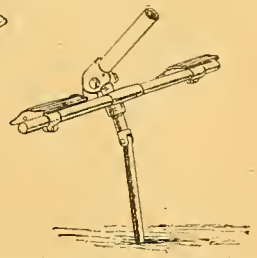
The Royal Enfield motor bicycle is certainly one of the neatest and lightest twin-cylinder motor bicycles on the market. The engine (which has mechanically operated inlet valves) is beautifully made, and is fitted with a special device by means of which the magneto spark can be advanced and retarded to suit varying engine speeds, while obtaining a maximum spark in any position.



(1.) The adjustable spring clip fitted to the rear mudguard for the kick-up stand.



(2.) Detail arrangement of the metal front splashguard.



(3.) The advantages of a fron wheel stand are numerous, and the Enfield Co. has not been slow to recognise them.

Mr. Davis informed us that his firm was turning out about twenty-four of these motor cycles per week at the time of our visit, and that two hundred of them had already been sold.

The company has a staff of demonstrators on the road, and any motor cyclist who contemplates the purchase of one of these machines can obtain a trial run by first making an appointment with the Enfield Cycle Co., Ltd., Redditch, Worcestershire.

A private testing track has been installed at the Enfield Cycle Co.'s works at Redditch—the only one of its kind in England. A batch of Royal Enfield lightweight motor cycles may be seen undergoing their preliminary test.

NO SIDECAR NEEDED.

Mary had a little lamb,
But that was long ago;
For Mary's grown up with the times,
While lambs but sheepish grow.

So Mary's bought a motor bike,
That's warranted to go;
And go it does when Mary rides,
For none could call her slow.

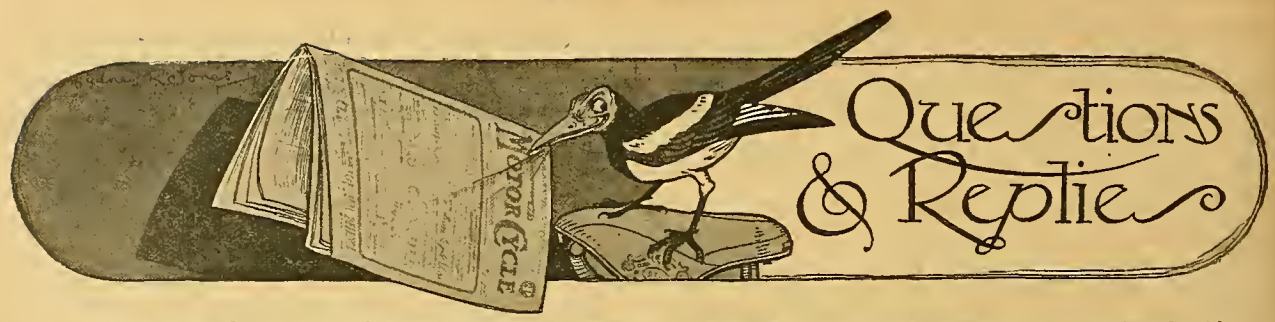
She's most enthusiastic, too;
You'll see her at the Show:
You'll meet her down at Brooklands, and
You won't in Rotten Row.

A member of a dozen clubs,
She's done the Edinbro',
The Thousand Miles, the Quarterlies,
As oft as any pro.

I'm pretty often there myself,
And that is how I know.
In fact, they call me Mary's Lamb,
Because I'm "sure to go."

And so I am, and by her leave,
I always will be so.
And, faith, we'll need no sidecar when
It's Mary, Lamb, and Co.

M.'s L.



A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

A Broken Carbon Brush.

I have a 5 h.p. V.S. fitted with Bosch magneto ignition (D.A.V. twin). Whilst removing the back cylinder carbon holder for the purpose of cleaning I, unfortunately, broke the carbon brush into two pieces, and one piece fell into the magneto. (1.) Will it do the magneto any injury to run machine with the broken piece of carbon inside? (2.) Can I remove the same without taking the magneto down; if so how? If the magneto must be taken down, please inform me as to the best way to proceed.—T. B. W.

The broken carbon brush should certainly be removed before you run the machine again, or shorting will result. There are two ways of removing the broken part. Remove the magneto from the bicycle and take out the carbon holder; then shake the magneto until the piece falls out. If this method does not succeed, it will be necessary to take off the brass end plate (which is not a difficult matter), and the broken part may then be removed. This is probably the quickest way. The Bosch booklet of your magneto will show you its internal construction and with this before you the method of procedure is quite obvious.

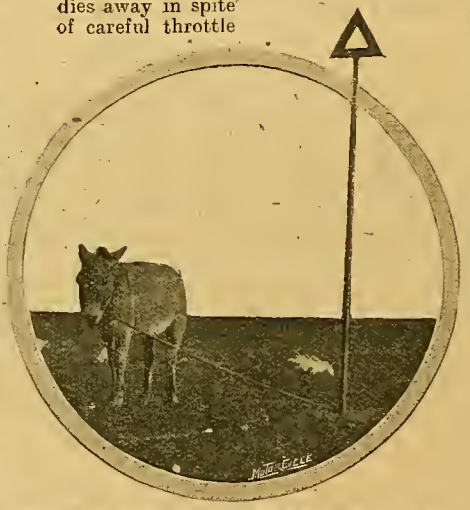
Buying a Second-hand Mount.

(1.) I am about to purchase a second-hand motor cycle. What is the total amount of the licences? (2.) Would a 3½ h.p. Fafnir with adjustable pulley take a sidecar with passengers, total weight eighteen stones, over moderately hilly roads? Should like to know if it would be able to take me with passenger as far as Brighton? (3.) Could I get a reliable machine for £15, and what age would it be?—R.C., Wandsworth.

(1.) The cost of licences is 25s., made up as follows: 5s. registration, 5s. driving licence, and 15s. local taxation licence. (2.) The machine would take a sidecar in fairly level country if geared low. It is, however, underpowered for general passenger work. It would take you probably to Brighton with occasional pedal assistance, but you might have trouble in getting it up Handcross Hill on the return journey. (3.) You should get such a machine for £15, but it would be about four years old.

Mixture Probably Too Rich.

I have a new two-speed 5 h.p. twin-cylinder with sidecar. As soon as ever I open the throttle the engine chokes itself to a standstill. A wait of ten minutes suffices to get under way again, and if the road is a little bit up hill, the same thing occurs in about threequarters of a mile. I have changed the inlet springs and reduced the opening a fraction. Also changed the jet from 31 to one of 29; slight improvement. There is no deposit on the cylinder head, and the engine does not knock, but simply dies away in spite of careful throttle manipulation. To change down to second speed only means that it stops very much sooner.—A. T.



New use for a danger sign. Snapped on the road last week-end.

We should say that your trouble is due to the engine choking itself with an over abundance of petrol. In other words, either the jet is too big, the level of the petrol too high, or the air supply altogether insufficient. If the consumption exceeds fifty to sixty miles to the gallon, you may be sure that the carburetter is wrongly adjusted. When the throttle is half open, can you make the engine misfire by opening the air lever wide? If not the extra air inlet should be enlarged, or a smaller jet substituted. It is unlikely that the trouble is due to any fault in the engine, but do not omit to oil frequently until the bearings are well run in.

Cutting Out One Cylinder.

Kindly give me the correct wiring diagram for interposing a switch in the electrical circuit of a magneto twin motor cycle, so that either cylinder can be "cut out" independently whilst riding. Would the switch wire connections be made direct to the magneto or the plugs, or would the h.t. cables require cutting into? The magneto is the DA2 type Bosch.—N.S.

Unfortunately, a switch to cut out either of the cylinders would present some little difficulty. The ordinary earth connection cuts out both cylinders, and it would therefore mean that you would have to bring the current flowing down over the plug wire to earth, and probably the simplest way to do that would be to have one of the many cut-out switches for attaching to plugs, which can be obtained from Gamage's (Holborn, E.C.), H. M. Hobson, Ltd. (29, Vauxhall Bridge Road, S.W.), and other accessory dealers. It would be far better to arrange your exhaust valve-lifter so that one valve could be lifted before the other, and so run on one or two cylinders at will.

Cracks in Exhaust Valve Seating.

I recently purchased a second-hand 3½ h.p. motor cycle, and on removing the exhaust valve I discovered two minute cracks across the seating in the cylinder casting. They are situated in two separate places where the wall of the valve aperture is thin, and are so faint that they have almost the appearance of scratches. Can you tell me—(1.) The likely cause? (2.) Whether there is a remedy, and if not is there any great disadvantage? (3.) Are they likely to extend? The cycle goes fairly well, but will not climb Westerham.—G.C.

It is difficult to account for the cause. Probably there was a slight flaw in the casting causing the cracks. It is quite possible that these cracks will extend, and we should not advise you to ride the bicycle very long without getting a new cylinder. The best thing to do would be to order a new cylinder at once, but we do not think there would be any harm in riding the machine while you are waiting for delivery, although you may get stranded through complete loss of compression.

Accumulator Charging.

We have in our workshop a 105 volts dynamo for lighting the workshop and some houses, also the village streets. The lamps are 25 c.p. The question is what should I do so as to be able to charge my motor cycle accumulators, which are four volts? Also which way are they to be connected?—R.E.R.

You first of all want to find out the capacity of your accumulators. When you know how many ampère hours they are you should arrange to charge at a ten hour rate, that is to say, you charge the accumulators just sufficiently fast to be fully charged at the end of ten hours. Next, you must see that the current is continuous. When the necessary resistance has been inserted the positive of the accumulator should be connected to the positive of the charging wire, and the negative of the accumulator to the negative of the charging wire. It is a good plan to use a switch controlling two lamps and connect up directly to the switch. You should insert a block of wood or vulcanite between the contact plates of the switch so that it cannot be switched on, attach the wires to the small plates so that the wires make contact with the metal portions, and are insulated from one another by the wood or vulcanite. The two lamps will then offer the necessary resistance. Accumulator charging is the subject of a chapter in "Motor Cycles and How to Manage Them."

Carburetter Query. A Rustproof Covering.

(1.) My 1909 Moto-Rêve does not seem to get enough petrol supplied to the carburetter, working jerkily on level and stopping dead on stiff hills, although this can be altered by depressing needle valve. I have adjusted float to give highest possible petrol level, which is well up to top of jet. Would enlarging needle valve orifice or weighting float improve matters? (2.) Would one enlarged jet act as well as the two now fitted, as even very fine sediment getting past gauze in bottom seems to choke them up? (3.) What would be the cost (approximately) for galvanising or other rustproofing of present machine, not having seen any advertisements for such in *The Motor Cycle*?—W. B.

(1.) We should think that the trouble could be overcome by having the jets slightly enlarged, but you could easily try the effect of weighting the float slightly, which would raise the petrol level. It would appear that there is some obstruction in the feed pipes preventing the flow of petrol. (2.) We should not recommend you to fit one larger jet in place of the two already fitted. What you had better do is to get into communication with the makers. (3.) Probably about £2. We regret we cannot tell you the exact cost of galvanising or other means of rustproofing the machine. Your local agent could probably give you an estimate.

A Question of Engine Power.

I am about to purchase a two-speed free engine Indian motor cycle, and am not sure which would be suitable. I would like to be able to take a sidecar with a 12 st. passenger during the summer months when required, but the greater bulk of my riding will be alone. (1.) Is the 4 h.p. two-speed free engine powerful enough, and what are the steepest hills it would mount with car? (2.) Would there be much difficulty in cost of petrol, wear and tear of tyres, etc., between the 4 h.p. and the 7 h.p.? (3.) Is the 7 h.p. two-speed, etc., any easier to manage in traffic than, say, a 3½ single-cylinder? (4.) Would there be much difference in and heavy to ride alone? (5.) Can one start from a standstill without fear of damaging clutch?—C.T.

(1.) If you propose doing much sidecar work we should strongly advise the 7 h.p. twin. If, however, you only intend to use a sidecar occasionally the 4 h.p. should be sufficiently powerful with a two-speed gear. Hill-climbing depends entirely on passengers' weights and gear ratios of machine. (2.) There should not be very much difference in the cost of running the two, say, about £7 to £10 per annum. Tyres are the chief source of trouble with powerful passenger machines, so the plan is to have heavy covers fitted in the first instance. (3.) We should say that the machine fitted with two-speed gear would be easier to manage in traffic than a single-cylinder with fixed gear, although we have not yet tried the two-speed twin. (4.) You might find the 7 h.p. rather more difficult to control alone, but it would have a great advantage when used with a sidecar (5.) Yes.

Formalities for taking a Motor Cycle into Germany.

I am going over to Germany shortly to stay for about six months, and wish to take my motor cycle with me. (1.) If I joined the A.C.U., would I need to pay a high tax to get it into the country? (2.) Would I need to take out a licence for keeping it and driving it? If so, how would I get the licences? (3.) Would I need to alter my number plates? (4.) Are the petrol, oil, and tyres any dearer than in England? (5.) Which would be the best route?—D.N.D.

(1-2.) Yes, certainly you ought to belong to the Auto Cycle Union, or some similar body. The following are the formalities for taking a machine into Germany: Copy of the entry of your machine in the County Council register should be taken to the German Consul, 49, Finsbury Square, E.C. The copy must bear the official stamp of the registration authorities. Provided this copy has been endorsed, it is not necessary to obtain German licences after arriving in that country. If you send a copy of registration licence to the Auto Cycle Union before 10 a.m. it is generally possible to get it endorsed the same day. A sum of 7s. must accompany this application to cover the fees, expenses, etc. You might read an article entitled "A Fortnight's Tour in Rheinland," which appeared in *The Motor Cycle* of November 22nd, 1909. In it you will see that the cost of Steuerkarte is three guineas, which is recoverable at any frontier customs house when leaving the country any time within a year of entry. (3.) We do not think so for a short stay. (4.) Petrol, oil, tyres, etc., are about the same as in England. (5.) Harwich to the Hook of Holland.

Quarterly Trials competitors stopped at the foot of Dashwood for the "test of hill climbing." The regulations for next Wednesday's Trial remain unaltered, so that riders will again be stopped at the foot of the test hills and allowed to climb them with cool engines. We shall be glad when the A.C.U. sees its way to stop the riders two miles further back, and prevent the competitors overtaking one another until the actual hill is reached, under pain of disqualification.

A Handy Tube Changing Device.

The novel tyre and tube changing device illustrated in the issue of March 21st has been named the "Nuttall and Birtles" patent.

Opening for an Assistant.

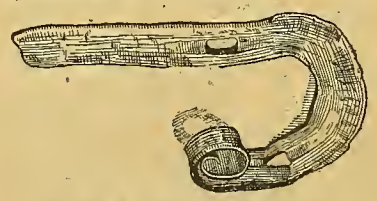
We know of a firm which is desirous of engaging the services of a motor cyclist as assistant in the motor and accessories trade. Letters addressed to the editor, and marked "Assistant," will be forwarded to the firm in question.

A New Contour Map.

Messrs. George Philip and Co., 32, Fleet Street, E.C., have lately published a contoured motoring map of the British Isles. The map, which is on a small scale, clearly shows by different colours the various altitudes obtaining throughout the United Kingdom, and should be useful to motor cyclists planning an extended tour in England, Scotland, or Ireland.

A Puncturing Instrument.

The accompanying sketch shows a Lancashire clog iron which entered one of the tyres of a Motosacoche while being ridden in a Northern town by A. D. Tyler, one of the Motosacoche Co.'s representatives. The article was



The clog iron referred to in the accompanying paragraph.

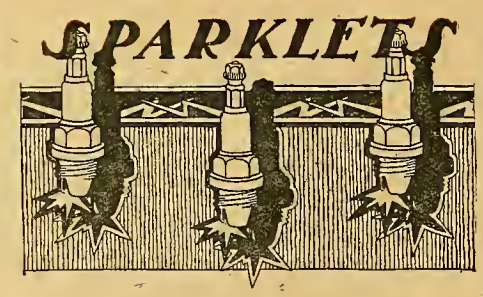
originally the shape of a horseshoe, and one end entered the tyre and tube and curled up as shown. The streets of some Northern towns are notorious for puncture-providing instruments, not only due to clog irons, but also to the nails which fasten them on to the clogs.

Improvements in Motor Spirit Cans.

The Anglo-American Oil Co., Ltd., proprietors of Pratt's spirit, have introduced another improvement in their well-known green cans. The faucet is now set in a dome-shaped stamping on the top of the can, so that when inverted every drop of its contents is emptied. This renders it easier to clean the can before refilling, and also ensures no waste of the precious fluid.

Catalogue Received.

The Bowden Album contains illustrated descriptions of the Bowden patent wire mechanism which is applied to levers and fittings used in connection with the control of motor cycle engines, brakes, carburetters, etc. Many new devices are introduced for 1910, and any motor cyclist who contemplates additions to his machine in the way of two-speed gears, handle-bar control of carburetter, magneto, etc., should make a point of sending to E. M. Bowden's Patent Syndicate, Ltd., Baldwin's Gardens, Gray's Inn Road, Holborn, E.C., for a copy of this useful and well illustrated catalogue.



Increase in Price of Rubber Goods.

In consequence of the rise in the price of raw rubber, Lycett's Rawido Belt Co., Ltd., Bromley Street, Birmingham, have been compelled to increase the price of the Lyso rubber belts ten per cent.

Prize Competition.

The Tennant Engineering Co., 120, Pershore Street, Birmingham, are offering a prize of £1 1s. for the best advertisement setting forth their merits on the reboring of cylinders and the fitting of new pistons.

Exhibition in Birmingham.

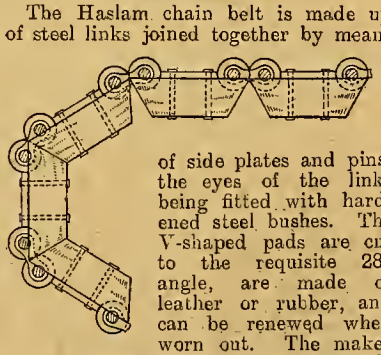
The Colmore Depot, 31, Colmore Row, Birmingham, who are exhibiting motor cycles at the Bingley Hall Trades and Industrial Exhibition, Birmingham, have purchased a certain number of admission tickets, and are willing to send one to any motor cyclist who is on the look out for a new machine and would like to make a thorough inspection of this firm's exhibit.

Useful Information Concerning Sidecars.

A treatise on sidecars has just been issued by W. Montgomery and Co., Coventry, in which all the popular types are dealt with, viz., (1) flexible, (2) castor wheel, (3) spring wheel, and (4) rigid. The question "Which is the best sidecar?" has many times been threshed out in our columns, and it is worthy of note that Messrs. Montgomery and Co. consider that there is no immediate answer to the question, because no one type can embody all the desirable points. They therefore wisely set out in the catalogue the features of each type, leaving the question to be settled by individual judgment.

A New Chain Belt.

The Haslam chain belt is made up of steel links joined together by means



of side plates and pins, the eyes of the links being fitted with hardened steel bushes. The V-shaped pads are cut to the requisite 28° angle, are made of leather or rubber, and can be renewed when worn out. The maker is Mr. James Haslam, 9, Racton Road, Fulham, S.W.

Reinforced Inner Tubes.

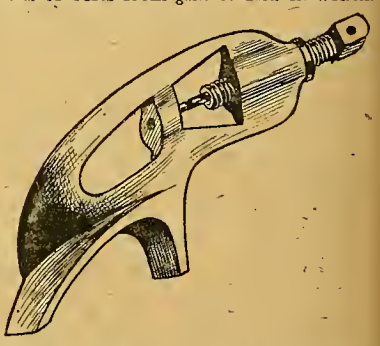
Challenge reinforced tubes for motor cycles are now made in 28in. × 2¼in. as well as the 26in. × 2¼in. size. Brown Bros, Ltd., keep a stock of the above at their showrooms in Newman, Street, Oxford Street, W.

The London-Land's End and Back Run.

R.O.M. tyres did exceedingly well in the Land's End and back competition recently organised by the M.C.C. It will be remembered that the roads were very dry and loose, and consequently severe on tyres. A lightweight machine shod with R.O.M. tyres won the Trotman prize, and 50% of the club gold medals awarded were to riders who also used this make of cover.

Multum in Parvo.

The appended sketch is practically self-explanatory. Our readers are doubtless familiar with that excellent accessory, the Ukantes belt remover, and it will be seen by the above that, incorporated with this, is an excellent belt punch. The whole tool is made in four separate sizes to suit all dimensions of belts from ⅝in. to 1in. in width.



The tool is sold by Price and Co., 25, Rosebery Avenue, E.C.

A Dressing for Leather Belts and Clutches.

Those who are troubled with slipping leather belts, fierce or slipping leather-lined clutches, or leather-lined band brakes which do not grip properly, should make a trial of Motiphos, a material made by the Motiphos Co., 34, New Bridge Street, E.C., which is a special cure for leather. To keep leather in good order it is essential that it should be dressed at intervals. Motiphos is composed of materials which preserve leather and restore it to its original state. It is a viscid substance, resembling liquid glue in appearance and consistency, and, according to an analytical chemist who thoroughly tested it, it is composed of an oily basis of a non-mineral origin and of a non-corrosive character. It is practically unaffected by temperature. On the occasion of this test several strips of disused belting which had become stiff, hard, and dry, were painted over with the substance, and after twenty-four hours the material had been absorbed, and the leather had become soft and elastic. Motiphos is sold in small tubes and costs very little. A properly-dressed leather belt may be used a great deal more slack than a belt which has been neglected.

HUNT'S

The City Motor & Cycle House, NEWGATE ST., LONDON, E.C.

RELIABLE ACCESSORIES AT

London's Lowest Prices

THE NORTH ROAD DUST AND RAINPROOF OVERALLS.

These meet a long-felt want; they can be instantly slipped on over the ordinary trousers, they fasten round waist with a leather strap and buckle. Being made in one piece they are a great protection to the stomach, also it is impossible for the rain to drive in as with the ordinary overalls. Made in three lengths—short, medium, and long. Shaped to go over boot. Patent Side fasteners. Price, in fawn waterproof material, **13/6**; best quality, **16/6**. Postage 6d. Double texture waterproof coat with collar and rain and windproof sleeves to match above, **21/-**

THE "ACME" WATCH HOLDER

Will not rust. Made in aluminium. Will fit all handle-bars. Complete with Ingersoll watch that is specially constructed to stand vibration. Watch can be set and wound without removing same from case. Each watch has a written guarantee given with it for 12 months. Price, complete, **8/6**. Case only, **3/6**. Post free.

THE LODGE PLUG.

Suitable for magneto or accumulator ignition. Spark brought well away from all cold metal surfaces, enabling **maximum power** to be obtained from spark and extremely weak mixtures to be fired. Three spark points and centre rod all of **absolutely pure nickel** and substantial in size. The spark will not burn them away. Porcelain sleeve round central electrode, which keeps hot enough to prevent the deposit of soot or any condensation, and this without the possibility of preignition common to plugs with projecting porcelains. Each plug guaranteed. Price **4/-**. Post free.

THE HUNT HELLESEN DRY CELL.

No corroding terminals. No acid. No charging. Always ready, clean, and dry. The **"Flash."** Height 6½×4×2½in. Approx. mileage, with single-cylinder engine, 1500. Price **6/6**. The **"Flight"** ditto. Height 5⅛ × 5½ × 2½in. Price **6/6**. The **"Midget"** emergency ditto. Height 5⅛×4⅜×1⅜in. Will run approx. 300 miles. Price **4/4**. Postage 6d. extra.

BOWDEN HANDLE-BAR CONTROL LEVERS.

Single lever only, **4/6**; ditto, with 4ft. of combined cable and stop, **6/4**. Double lever, **6/-**; ditto, with two lengths each 4ft. of combined cable and two stops, **9/8**. Post free.

THE HUNT MAGNETO COVER.

Manufactured of best patent leather, far superior to rubber as it does not crack or perish. Will fit all types of magnetos. Price **2/3**. Postage 2d. extra. Protects the magneto from dust, dirt, rain, etc.

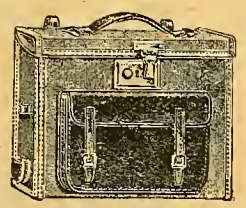
The H.S. All-rubber Goggles, including one set each of smoked and plain glasses. Price **1/11**. Postage 2d.

THE HUNT EXHAUST WHISTLE.

A splendid road clearer. Easily fitted. Operated by foot. Effective on one or two cylinders.

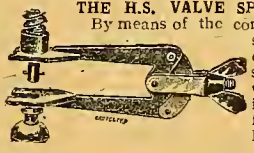
Price complete, in brass, with foot pedal, **10/6**. Post free.

THE "COMPACT" PANNIER BAG.



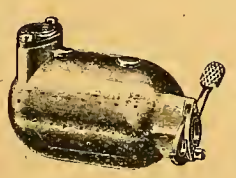
Manufactured of strong waterproof brown canvas, fitted with two small outside pockets to take oil can and petrol squirt, and large leather pocket for spares. It is adapted for strapping on the side of a Lycett tubular carrier. This bag will carry all tools, oilers, etc., also a spare tube and belt. Size 12 × 9 × 3in. Price **12s. 6d.** Carriage paid.

THE H.S. VALVE SPRING LIFTER.



By means of the compound action the stoutest spring is easily raised by a slight turn of the winged nut, leaving both hands free. Price **2/6**. Post free.

THE HUNT SILENCER.



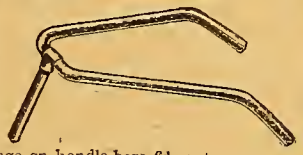
Manufactured of aluminium. No back pressure. Very light. Guaranteed silent. Price **14/6**, with cut out **18/6**. Ditto, with whistle, **24/-**. Post free.

THE HUNT EXHAUST CUT-OUT.

Increases the power on hills. Easily fitted. Worked by the foot.

Price in brass with foot pedal, **4/6**. Post free.

HANDLE-BARS.



Best quality only. Length, 23ins. Price **6/9**. The **P.M.** pattern, as illustrated; length 18in., stem ⅞in. or 1in. Price **7/6**.

Postage on handle-bars **6d.** extra.

THE "COMPACT" TOOL ROLL.

Size 15 × 7½in.

A useful little accessory, keeps all the tools clean and separate. Can be carried in the ordinary toolbag, is fitted with pocket for spares, manufactured of soft pliable leather and has a strong leather binding strap.

Price **3/-**. Postage 2d.

THE R.O.M. PUNCTURE PROOF COMBINATION RUBBER AND STEEL NON-SKID COVER.

Give absolute immunity from skidding under any road conditions.

Are long of life, and yet resilient.

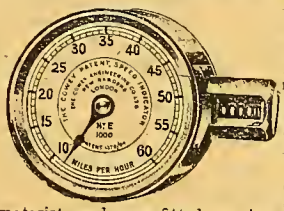
Are capable of being ridden equally well in summer or winter.

Present the greatest possible resistance to puncturing materials, and yet have no leather in its composition (leather making the tyre "dead").

Price, 26 × 2, **52/-**; 26 × 2¼, **55/-**; 26 × 2½, **57/6**; 24 × 2¼, **53/-**; 24 × 2½, **54/6-**; 28 × 2, **54/-**; 28 × 2½in., **60/-**. Carriage paid.

THE COWEY SPEED INDICATOR AND MILEAGE RECORDER (Guaranteed).

Protection from Prosecution.—To the careful rider the Cowey is invaluable, for the exact rate at which the cycle is travelling can be seen at a glance, and it is impossible to unknowingly exceed the maximum legal speed. Motorists generally know the difficulty of correctly estimating the speed at which they are riding, and have been "trapped" when travelling—as they imagined—well within the limit.



Registers a speed up to 60 miles per hour. Mileage recorder registers up to 10,000 miles, then automatically starts again.

The indicator can be easily attached by any motorist, and once fitted requires no attention or adjustment whatever. It will continue to render good service as long as it is attached to the cycle, for it is constructed throughout of the best and most suitable materials by expert British mechanics at Kew Gardens.

Price, in Nickel, **84/-**, carriage paid.

THE NEW MODEL MUD PROTECTOR.

With Side Wings.

Manufactured of best patent leather, strengthened with iron supports. It is attached by means of thumb screws to front mudguard, and can be fitted to any make of machine in one minute; protects both rider and motor from all dust and mud thrown up by the front wheel.

Price **5/-**.

Postage 4d. extra.

THE "PATCHQUICK" REPAIR OUTFIT.

Containing "Patchquick" patches, which amalgamate with the tyre, and are not affected by heat

or friction. Used in conjunction with the "Patchquick fix," a repair can be executed that is equal to any vulcanising process. Price **3/-**. Post free.

1910 Catalogue now ready, gratis and post free.

A33

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland. Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan Carmarthen Cardigan and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

No. 2315.—5 h.p. VINDEC Special, T.T. model; **£60 10s.** Guaranteed.

3½ h.p. new 1910 HUMBERS, two-speed gear, free engine models; **£50.** Immediate delivery.

No. 1939.—8 h.p. MATCHLESS Racer, J.A.P. engine; winner of several competitions; price **£22 10s.** Guaranteed.

No. 1664.—3½-4 h.p. ROC, Druid spring forks, magneto ignition; **£15.** Guaranteed.

No. 1822.—2¾ h.p. ARIEL, shop-soiled only, 1909 model; **£15.** Guaranteed.

No. 1599.—1¾ h.p. F.N. Lightweight, magneto, spring forks; **£15.** Guaranteed.

A few only 1910 Two-stroke 3½ h.p. REXES, new; price **£48.**

No. 2307.—3½ h.p. 1909 Free-engine TRIUMPH, separate generator lamp, horn, spare valve, complete, condition as new; price **£42.** Guaranteed.

No. 2308.—5 h.p. VINDEC Special, 1908 model, two-speed gear and free-engine clutch; **£28.**

No. 2318.—4½ h.p. Twin-cylinder MINERVA M.O.V. Motor Cycle, fitted with Roc two-speed gear and free engine, spares, lamp, horn; **£25 15s.** Guaranteed.

2 h.p. MOTO-REVE, 1910 model; **36 Guineas.**

3¾ h.p. PREMIER Twin, 1910 model. Offers.

No. 2247.—3½ h.p. VINDEC, magneto, good tyres, F.N. engine, toolbag, horn, footrests, stand, carrier; **£15.** Guaranteed.

No. 2248.—3½ h.p. Magneto MATCHLESS, J.A.P. engine and carburetter, Rom back tyre, in excellent condition; **£25.** Guaranteed.

No. 2249.—3½ h.p. WOLF, Clincher tyres, horn, toolbag, etc., enamel, plating, engine, etc., as new; **£15.** Guaranteed.

No. 2260.—2 h.p. 1909 MOTO-REVE, standard model. Continentals, lamp, horn, toolbag, etc.; **£24.** Guaranteed.

Two 5 h.p. 1909 Twin REX DE LUXE, two-speed gear, standard models, new; **42 Guineas** each. Guaranteed.

No. 2224.—New 2¼ h.p. 1910 ROYAL ENFIELD, standard model, Palmer Cord tyres. **Offers.**

No. 2208.—2½ h.p. BRADBURY, h.-b. control, Clincher tyres, excellent condition; **13 Guineas.** Guaranteed.

No. 2234.—2 h.p. PEUGEOT, good tyres, lamp, horn, toolbag, etc.; **9 Guineas.** Guaranteed.

No. 2021.—3¼-4 h.p. MATCHLESS, J.A.P. engine and carburetter, 26 × 2½in. Dunlops, magneto, spring forks, specially built machine; **27 Guineas.** Guaranteed.

No. 2039.—4 h.p. 1909, Roc two-speed gear, lamp, horn, tools, etc, new condition; **34 Guineas.** Guaranteed.

No. 2164.—7 h.p. BAT, Mabon clutch, good tyres, stand, carrier, toolbag, good passenger machine; **£38.** Guaranteed

No. 2185.—1¾ h.p. Magneto MOTOSACOCHE, 1909 model, Clincher tyres, usual spares, almost new; **£27 10s.** Guaranteed.

No. 2024.—3½ h.p. 1909 MINERVA, Bosch magneto, spring fork, Continental tyres, horn, stand, carrier; **23 Gns.** Guaranteed.

A few left, 3½ h.p. new 1909 Standard REXES, complete with lamp, horn, etc. **£38.**

No. 2193.—5 h.p. NORTON, Druid forks, adjustable pulley, handle-bar control, Rom tyres, front and back stand; **£25.** Guaranteed.

No. 2046.—2¾ h.p. 1909 Magneto ARIEL, handle-bar control, spring forks, in new condition; **£22.** Guaranteed.

No. 2075.—3¾ h.p. 1910 Twin PREMIER, standard model, not ridden twenty miles; **42 Gns.** Guaranteed.

No. 1796.—1¾ h.p. MOTOSACOCHE, Clincher tyres, Druid forks, new condition; **16 Gns.** Guaranteed.

No. 1857.—3½ h.p. 1908 Two-speed Magneto BROWN, very good passenger machine; **20 Gns.** Guaranteed.

No. 2150.—4½ h.p. 1908 Twin MINERVA, with rigid sidecar, **£27 10s.** Guaranteed.

No. 2125.—5 h.p. 1907 Two-speed VINDEC, standard model, very good sidecar mount; **£28 10s.** Guaranteed.

No. 1899.—3½ h.p. 1908 BROWN, magneto, new tyres, enamel, plating, etc., very good; **19 Gns.** Guaranteed.

We have the following New Motor Cycles ready for immediate delivery

3½ h.p. REX Speed King, new model, spring forks	£44 0
3½ h.p. REX Tourist, plate clutch	£54 0
5 h.p. REX DE LUXE Two-speed machine	£62 0
3½ h.p. KERRY-ABINGDON, 1910 model	£43 0
3½ h.p. 1910 DOT	£47 10
5 h.p. VINDEC Special, 1910 model, two-speed and free engine model	£64 0
3½ h.p. L.M.C., two-speed and free engine model, 1910	£48 0
3½ h.p. 1910 QUADRANT	£47 0
3½ h.p. Two-speed 1910 HUMBERS	£50 0
3½ h.p. BRADBURY, new, 1910 model	£46 0
3½ h.p. 1909 Tourist REXES	£35 0
5-6 h.p. BAT, M.O.V.	
3½ h.p. EXCELSIOR, free-engine clutch, 1910 model	£54 0

Besides those quoted in this space, we can offer other good bargains. Do not fail to get our prices before definitely deciding. Recommended by all the leading makers for exchange business. Terms on application.

WAUCHOPE'S, 9, SHOE LANE, FLEET ST., LONDON, E.C.
'Phone, 5777 Holborn. Telegrams: "Opificer, London."

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20, Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days, and if no sale is effected, each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

SECTION I

Northumberland, Cumberland, Durham, and Westmoreland.

1910 Triumphs in stock.—L. Smith, The Garage, Barnard Castle.

MAGNETO Motor Cycle, 2¼h.p. (74 by 74), built 1909, few parts missing; £15, to clear.—Edw. Irving, Great Dockray, Penrith.

2¾h.p. Lamberjack, Zedel engine, Xtall spring forks, **4** good covers, splendid condition, very low built; £12; can be seen London.—Rennett, Scaleby Castle, Carlisle.

TRIUMPH Motor Cycle, 1910, free engine, new, for sale; also F.N., second-hand, 2h.p., splendid condition; trial.—Robinson and Co., Motor Depot, Belford, Northumberland.

CENTAUR, 3½h.p., magneto, new 26in. wheels, Palmer back Clincher front; good condition, chain driven, compression good, stand; £15. offers.—Hawley, Corporation Rd., Workington.

3½h.p. Rex, M.O.V., Brown-Barlow, handle-bar controlled carburetter, adjustable pulley, brand new 2½in. tyres, stand, sound, and perfect condition; £12, lowest.—23, Hope St., Crook.

SECTION II.

York and Lancashire.

3¾h.p. 1910 Twin Premier; listed by makers £52 10s. my price £47 10s.—Hitchen.

1910 Douglas, just in; 38 guineas; no waiting, immediate dispatch; cash or exchange.—Hitchen.

TWO-SPEED Humbers, exhaust under engine, perfectly new; £45 cash, or exchange terms; offers wanted for the Humber and sidecar complete.—Hitchen, 163, Euston Rd., Morecambe.

DOUGLAS, 1909, as new, tools, spares; £27, lowest.—Rodgers Broom Lodge, Rotherham.

4½h.p. 4-Cyl. F.N., 1908, 2¼ Palmer cords, new Bosch magneto; £22.—Potter, Bleabeim Sq., Leeds.

3½h.p. 4-stroke Scott, unpacked, cannot accept delivery; £53.—4,422, *The Motor Cycle* Offices, Coventry.

1910 3½h.p. Humber, two speeds, as received in crate; £45.—R. Blezard, 26, Bank Hey St., Blackpool.

2¾h.p. Minerva, very low, and in good condition; trial given; £8.—Forrest, Smallwood House, Standish.

DOUGLAS, 1910, the King of lightweights, in stock; sole agent for Manchester district.—Gourley, Fallowfield.

WOLF Lightweight, 1909, practically new, spares accessories; £15.—Adamson, engineer, Spring Bank, Hull.

3½h.p. N.S.U., 1908, magneto, excellent condition; nearest £25.—Illingworth, 345, Newport Rd., Middlesbrough.

LIVERPOOL.—Motosacoche, Moto-Reve, Wolf, the only veritable lightweights; Phelon and Moore heavy end light.—Sole official agents, British Cycle Co., 1, and 3, Berry St.

1908 N.S.U., 1¾h.p. Magneto Lightweight, perfect; any trial; winner most prizes recent Harrogate Club Gymkhana; £14 14s.—Crossley, 25, Claremont Terrace, York.

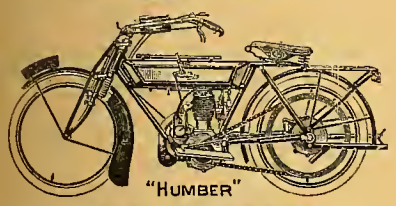
1 SPEED v. 2 SPEEDS

We cannot imagine anyone paying £48 for a machine fitted with one speed, when we can offer a **NEW TWO-SPEED HUMBER and CORONET SIDECAR for £42 10s.** It is equivalent to throwing money "down the gutter." Remember, the usual price of the above "Combination" is £55, showing a clear saving of £12 10s. It is like

MONEY FOR NOTHING.

These "Combinations" will pass a £500 car anywhere at any time. A turn of the handle suffices to set in motion the mechanism of these beautifully designed machines. They are designed to take two passengers speedily, comfortably, and stylishly at a minimum cost; and they do it. Please note, we have only a few left.

£54 7 6. for £42 10 0.

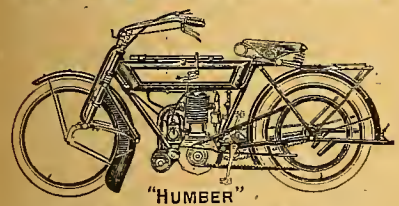


1909½ HUMBERS

brand new. These you can hardly tell from 1910 models, being fitted with improved pattern silencers, spring forks, larger pulleys, Roe licensed two-speed gear, h.-b. control, registered tank, high tension magnetos, Dunlop tyres, oil pump operated by foot, stand and carrier, toolbag with all tools fitted to handle-bar. Fully guaranteed.

£42 10s., complete with sidecar.
£38 10s., less sidecar.

1909½ Single Speed Humbers.



TEN ONLY ..... **£32 16s.** each.

Druid spring forks, Bosch magnetos, h.-b. control, pedalling gear, stand and carrier, toolbags, tools, number-plates, etc. Usual price £45. A clear saving of £11 10s. Only Booth's can offer such value.

NEW 1909 ARNOS.

We have a few Brand New 3½ h.p. Models, fitted with magnetos, h.-b. control, complete with stand, etc.
List price £45. Our price, **£28 10s.** Or exchange.

Other Sidecar Machines.

5½ h.p. BROWN, twin, 1908 magneto, free engine **£25 10**
5½ h.p. REX DE LUXE, Roe clutch, magneto.. **£21 10**
5 h.p. Twin REX, 1908, magneto, spring forks.. **£24 10**
3½ h.p. HUMBER, 1909, two speeds, soiled only **£18 10**
3½ h.p. BAT, magneto, two speeds, spring frame.. **£24 10**

Beautiful Solo Mounts.

3½ h.p. BRADBURY, 1909 model **£26 10**
3½ h.p. REX Tourist, 1909, run about 150 miles.. **£28 10**
5 h.p. REX Twin Tourist, 1908 model **£21 10**
1¾ h.p. N.S.U. Lightweight, magneto, 1908 model **£16 10**
3-6 h.p. REX Featherweight, magneto, 1908 model **£16 10**
5 h.p. Twin REX Speed King, magneto, 1908 model **£21 10**
3½ h.p. N.S.U., magneto, low built **£18 10**
3½ h.p. MINERVA, magneto, very nice order.... **£16 10**
2 h.p. MINERVA, 26in. wheels, spray **£3 15**
2½ h.p. HUMBER, spray, spring forks **£4 10**

£1,000 WAITING.

We want good magneto machines.

BOOTH'S MOTORIES,
CHARLES STREET, off Square Road,
Phone 1062. **HALIFAX.** 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

4½ h.p. Twin Minerva, spring forks lamp and horn; any running test; £19.—139, Cleveland Rd., Crumpsall, Manchester.

N.S.U., 5½h.p., twin, magneto, spring forks, good tyres, in good condition ready for the road; £25.—H. Meadows, Hall Lane, Hindley.

3 h.p. Noble, Chater-Lea fittings, sound condition; £9, or take sidecar part payment.—40, Mouton St., Greenheys, Manchester.

MOTO-REVE, late 1908, all 1909 improvements, in good condition; no time for riding; sacrifice £18.—Al-fresco Pavilion, Frizinghall, Bradford.

DOUGLAS, 2½h.p., new June, 1909, perfect order, tyres unpunctured, rubber studded back; £28, or near cash offer.—Ellis, 157, South Parade, Cleckheaton.

N.S.U., 3½h.p., free engine, two-speed, new condition; any trial; £26, or exchange lower power and cash.—57, Parrin Lane, Monton, near Manchester.

1909 3½h.p. Bradbury, unpunctured, Cowey indicator, special fittings, extra fast, and absolutely faultless, injured knee only reason; £30, no offers.—P.T., West View, Bolton-le-Sands.

TRIUMPHS, immediate delivery, come and see me before purchasing your 1910 mount, any make supplied; second-hand Triumphs taken in part payment.—Triumph Agent, 53, Trafford Rd., Salford.

1908 4h.p. Twin N.S.U., spring forks, two-speed gear, magneto, handle-bar control, very low, stand and footboards, ridden 1,500 miles, guaranteed perfect; cost £60 bargain, £39.—Duckworth, 197, Manchester Rd., Sudden, Rochdale.

4½ h.p. Twin Minerva, overhauled by makers three weeks ago, R.O.M. ignition, two new Fuller coils, Brown and Barlow handle-bar control carburetter, adjustable pulley, R.O.M. back tyre, Whittle ¾in. belt; price for quick sale £25; seen and tried any time.—11, South Parade, Huddersfield.

ARIEL, 3½h.p., 1907, perfect running order, splendid climber, hand starting, rubber footboards, unpunctured Clincher 28 by 2 tyres, B. and B., handle-bar controlled, Advance adjustable, trembler, and wipe contact, two accumulators, new Powell and Hanmer lamp, new spare steel studded Peter-Union non-skid and Clincher Matchless silencer, recently overhauled, stand, horn, carrier, and tools; £15.—D. C. Swinton, Masham, Yorkshire.

3½ h.p. Bradburys, 1910, standard models, £46; delivery from stock; 3½h.p. 1909 Bradbury, with free engine, Rom tyre, good as new, £32; 3½h.p. 1909 Bradbury, standard model, almost new, £30; 2½h.p. Bradbury, light and low, good order, £9; 2½h.p. Kerry, good order, cheaper than a push bike, £6; good allowance for old machines in exchange for Bradburys.—Parry, George St., Oldham, sole agent for Bradbury and Douglas.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

TWIN Fairy, 2¾h.p., late model, fine condition; £11.—Hall, Richard St., Northwich.

3 h.p. Motor Cycle, Minerva engine, good condition; £9 10s.—4,408, *The Motor Cycle* Offices, Coventry.

5 h.p. Twin Rex and adjustable forecar; lot £19 10s., or separate.—Turner, 405, Cheetham Hill Rd., Dukinfield.

1909 Triumph, perfect condition, tools, lamp, etc.; £32 10s.—T. Lidderdale, Weeping Cross, Stafford.

MINERVA Twin, 4½h.p., Vindec Special, 3½h.p.; either, fully equipped; £20.—Hollingworth, Alfreton.

2½ h.p. Bradbury, vertical, in good condition; seen any time; £8 10s.—H. Shacklock, Manby St., Wolverhampton.

3¾h.p. N.S.U., December, 1908, magneto, speedometer, new tyre and belt, perfect condition; £25.—Dean, Hollies, Sandbach.

MINERVA, 1908, 3½h.p., handle-bar control, magneto just thoroughly overhauled; £25.—Richards, "Chronicle," Shrewsbury.

3½ h.p. Zenith Bicar, spring frame, luxurious machine, fast, reliable, and climb anything; sacrifice £17.—R. Else, Leawood, near Matlock.

TRIUMPH, 1909, standard model, only ridden few hundred miles, absolutely as new, except little wear on tyres; £38.—Moss, Wem.

3¼h.p. Rex, 1910, B.B. carburetter, h.b. control Whittle belt, new adjustable pulley, good condition; any trial; £11.—"Craig Lea," Bath St., Rhyl.

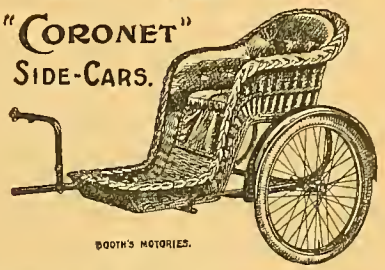
2 h.p. Minerva, 26 wheels, low, enamelled green, tools, lamp, and stand; £10, or exchange tricar or higher power.—Mills, Slade House, Kegworth, Derby.

MOTO-REVE, magneto, two Clinchers, perfect condition, unscratched, Druid spring forks, not gone 200 miles; seen in Manchester; £24.—Oliver, Lymm, Cheshire.

TRIUMPH, 1907, just overhauled, new cylinder, bearings, etc., handle-bar control, adjustable pulley, new non-skid tyres, Stanley belt and headlight, horn, etc.—26, Western Rd., Derby.

MOTOR Cycle, 3½h.p., just thoroughly overhauled, new tyre driving wheel, Palmer cord front, spare Clincher, all tools, spares; £9 10s., or offers.—Whiting, butcher, 6, Bird St., Lichfield.

£4 17s. 6d.



We maintain the "Coronet" is the BEST DESIGNED SIDECAR on the Market.

Free from Side-slip.—The "Coronet" Sidecar is attached in three places, the front down tube, bottom stay, and saddle bolt, and can be detached in three minutes. Every tube of attachment is telescopical and adjustable to suit any length wheelbase, any height or width. When attached the combination is as firm and rigid as a Tricar, and entirely free from side-slip, and can be driven safely without passenger if desired.

Delivery from stock to suit TRIUMPHS, REXES, P. & M.'s, N.S.U.'s.

Price £4 17s. 6d. Discount to trade.

LATEST PATTERN HANDLE-BARS.

Slightly upturned, with drop ends, built of heavy gauge tubing, and well plated. Per pair, **6/6.**
We build handle-bars to your own dimensions from **7/-**

LOW SEAT-PILLARS, 4/3.

Discount to trade.

SILENCE.—My own **Silent Silencers.** Noise reduced to a minimum. No back pressure. Hundreds in use. Only **3/3** each.

"GRIPSKIN" BELTING.

Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

⅝in., 10d.; ¾in., 11d.; ⅞in., 1/1; 1in., 1/2.
Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

Clincher Covers: 26in. or 28 x 2in., 2¼in., 2½in., **16/6.**
Dunlop Covers: 26 x 2in., **15/6**; 26 x 2¼in., **17/6**; 28 x 2¼in. or 2½in., **15/6.**
28 x 2in. Dunlop Covers: Beaded, **14/6**; Wired, **10/6**
24 x 2¼in. Clipper-Reflex, heavy treads, **12/6**; ditto tubes, **4/-.** 28 x 2¼in. Clincher Tubes, **3/3** each.
Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from **59/6**
Your old coil and acc. taken in exchange.

CARBURETTERS.

BROWN AND BARLOW. AMAC.
Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters.
OLD CARBURETTERS BOUGHT.

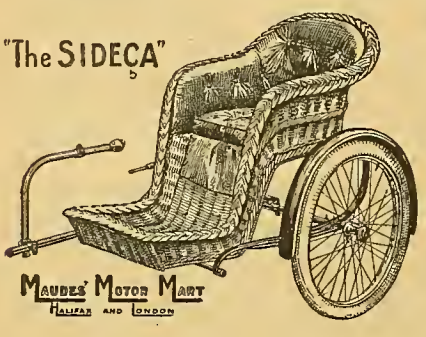
MISCELLANEOUS.

De Dion Car Frame, wheels, differential	**£3 10s.**
New Water-cooled Cylinder M.O.V., 81 mm. bore	**19/6**
Six good Plain Coils .....each	**3/3**
Dozen good Trembler Coils .....each	**7/6**
Mudguards and Stays 3in., **2/11**, 4in.,	**3/6**
Silent Silencers for engines to 5 h.p.	**3/3**
Long Handle-bars, well plated ..... **5/6** and	**6/6**
500 Fuller Midget Trembler Coils	**17/6**
200 Fuller Plain Coils (your old coil taken in exchange)	**10/6**
250 Mirror Lens Lamps, with generators	**14/9**
50 Pairs New X'lall Spring Forks, latest	**15/-**
Longuemare, Minerva, F.N. carburetters .... each	**5/6**
Osborne Four-speed Gear, ...	**35/-**
28 x 2¼ Clincher Tubes	**3/3**
Amac and B. & B. carburetters	**7/6**
Good Forecarriage, complete, with tyres.....	**£2 19s.**
Light Car Frame, with springs and wheels	**£2 10s.**
Norman Two-speed Gear, nearly new	**£2 5s.**
New Twin Antoine Cylinder.....	**20/-**
New Amac Carburetter, handle-bar control	**17/6**
Second-hand pair XL'All or Matchless Spring Forks	**9/6**
De Dion Two-speed Gear Box, nearly new	**£2 5s.**
Low tension Magneto suit car	**27/6**
New Pistons, 81 mm. diam.	**3/9**

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), HALIFAX.
Telephone 1062.

MAUDES' MOTOR MART

HALIFAX AND LONDON



The finest sidecar at present on the road irrespective of price.

"Par Excellence."

Double Cee springs. Stove enamelled in two coats. No wasted or unnecessary plating. Luxuriously upholstered either red or green. Finished any colour to order.

However we could chant its praises "for months and months and months," but send for pamphlet.

£5 5 0

ALL COMPLETE.

DISCOUNT TO TRADE.

Immediate Deliveries.

We are experiencing some little difficulty in getting deliveries of Triumphs, and offer £46 octt for free engine models (three) and £42 ros. standards (new).

N.S.U.'s

Six 3 h.p. models, with magneto, N.S.U. spray carburetter, 2¼in. Peter Unions, 26in. wheels, any colour finish, which we can offer for **£25.** Brand new.

We are buyers of any number of good magneto machines, with or without two-speed gears, also of small modern cars.

Cars and Motor Cycles sold on commission, 5%. No sale, no charge. All advertising, garage, cleaning, etc., free.

Special Clearance in Accessories.

Complete Lists upon application.

Six new soiled Bosch Plugs; listed 3/6	2/8
Two 1910 Amac H.B.C. Carburetters	27/6
One 1910 B. and B. ditto	27/-
Two 20 amp. h.r. Fuller Accumulators; listed 77/-	11/-
Two Pairs Matchless Spring Forks; listed 15/6	12/6
Ten 26 × 2¼in. Clincher Red Tubes (new)	3/3
Fourteen 26 × 2¼in. ditto Grey (new)	4/6
Three Two-cylinder Trembler Coils (new)	10/-
Six Toolkits. Marvellous value	7/6
Separate Generator Lamps, large size, complete	12/6

Send for Lists. We have a very large number of goods to clear at throw-away prices.

PHŒNIX Quad Car 8 h.p., two-seater, two cylinder, a beauty **£40**

MAUDES' MOTOR MART,

136, Great Portland Street, (Off Oxford Circus),

LONDON, W.

Telephone 552 Mayfair. Telegs.: "Abdicate, London."
Hours 9 to 8. Sats., 9 to 6.

MOTOR BICYCLES FOR SALE.

1909 Triumph, with mirror searchlight, and tools, complete; £37; also 2¼h.p. Triumph-Minerva, £8, or best cash offer; new stand and carrier, combined, 5s.—Newport, Tattenhall, Chester.

4 h.p. Motor Cycle, Chater-Lea, live axle, Whittle belt, cut-out, studded tyres, etc., a powerful and reliable easily controlled machine, in first-class condition, suitable for sidecar work; a genuine bargain, £15 10s.; trial.—L. S. Fearn, Alfreton.

TRIUMPH, late 1909, only run 500 miles, guaranteed perfect condition. Cowey speedometer, King of Road lamp, generator, horn, spare valve, carbide carrier, all tools, tyres perfect; cost £56, accept £40, or nearest cash offer.—Woodhouse, Lily Bank, Hereford St., Sale.

PREMIERS (twin or single). Douglas, and Enfield.—Birmingham and district agency. Samples on view at depot, and at Stand 131, of the Bingley Hall Exhibition. Trials arranged. Present machinea taken in part payment; deferred payments if desired. Few second-hands.—Colmore Depot, 31, Colmore Row (opposite Cathedral Church).

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

3 h.p. Lincoln Elk, almost like new, fast and reliable; bargain, £12.—B. Morris, Bourne.

MOTOSACOCHE, bought last November, only ridden 700 miles; £25.—Wall, Hengar Lodge, Leamington.

DOUGLAS, king of lightweights, C. models in stock; inspection invited.—T. Norton, ironmonger, Coventry.

3½ h.p. Rex, magneto ignition, new tyres, in good condition; £18.—E. Harbourn, 34, Boston Place, Coventry.

5 h.p. Rex, new tyres, Whittle, complete, and oilskins; £11, absolute bargain.—59, Hartlepool Rd., Coventry.

2¼h.p. Clement-Garrard, in first-class condition, Watawata belt, Amac h.b. control.—Butterfield, Stechford.

SINGLE Werner for sale; £12, or nearest offer; in good condition. — Harriman, 44, Gladstone St., Leicester.

MOTOR Cycle, F.N., brand new, 1910, not ridden 500 miles; £32.—F. E. Baker, Ltd., 90, Moorsom St., Birmingham.

1910 Premier Twin, brand new, perfect, complete, lamp, generator, horn; 42 guineas.—4,429, *The Motor Cycle* Offices, Coventry.

TRIUMPH, Rex, Minerva, Excelsior motors, new and second-hand; send for weekly list.—The Victoria Garage and Electrical Co., Ltd., Coventry.

1909 3½h.p. Minerva, magneto, spring forks, £2 5s. lamp, not done 800 miles, guaranteed perfect; £28 10s.—214, Fosse Rd. North, Leicester.

WOLF Lightweight, good as new, tyres not worn, 2 h.p., very fast, spring forks, stand; £12, or nearest offer.—Gelder, 38, Park St., Lincoln.

FOR Sale, 5h.p. Twin Kerry, in perfect order, accessories lamp, spare tubes, etc., complete; £16. — Apply, W. Vaisey, 61, Leeming St., Mansfield.

MINERVA Motor Cycle, 2¾h.p., vertical, M.O.V., spring forks, B100 saddle, Peter-Union, Dermatine belt; £12 10s.; low built.—56, Sutton St., Aston Manor.

3¾h.p. Twin Premier, new last month, hardly ridden, complete, spares; any trial; cost £56, accept £43, a genuine bargain.—T. S. Walker, Market Sq., Retford.

3½h.p. Twin Werner, enamelled grey, h.b. control, variable speed gear, footboards, 5in. mudguards, spring forks; £16.—David, 44, Arthur St., Loughborough.

3½h.p. Ariel, 1910 model, nearly new, free engine, variable gear, starting handle, complete with £2 2s. lamp, 3-note horn; £40.—Lean, Holly Mount, Upland Rd., Selly Park, Birmingham.

MOTOSACOCHE, in grand condition, exceptional good hill-climber, two accumulators, lamp, spare cover, and all accessories; £15 10s.; guaranteed perfect and looks equal to new.—Oswald House, Queen Victoria Rd., Coventry.

1910 Humber, latest model, also latest Ariel, fitted with Dunlop studded tyres and Brooks padded B104 saddle; £42 each; slightly soiled; exchange entertained.—Evans, 358, Stratford Rd., Birmingham.

4 h.p. Roc Motor Cycle for sale, cheap, £19, handle starting, with two-speed gear, handle-bar control Whittle belt, magneto, in fine condition, or exchange for good 3½h.p. magneto.—Carter, 257, Tiverton Rd., Bournbrook, Birmingham.

PREMIERS (twin or single), Douglas, and Enfield.—Birmingham and district agency. Samples on view at depot, and at Stand 131, of the Bingley Hall Exhibition. Trials arranged. Present machines taken in part payment; deferred payments if desired. Few second-hands.—Colmore Depot, 31, Colmore Row (opposite Cathedral Church).

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

3½h.p. N.S.U., magneto, perfect, as new; £15.—3a, Bridge St., Cambridge.

WERNER, 2¾h.p., belt drive, good running condition; £6 10s.—Ward, Pavenham, Beds.

MAUDES' MOTOR MART

HALIFAX AND LONDON

All machines guaranteed in good running order before delivery.

NEW MODELS FOR IMMEDIATE DELIVERY.

New **1910 BRADBURY,** standard	£
New **1910 MOTO-REVE,** 2 h.p.	£
New **1909 REX,** 5 h.p., two speeds	£
New **1909 REX,** 3½ h.p., Tourist Model	£
New **N.S.U.,** 3 h.p., magneto	£
New **N.S.U.,** 3½ h.p., magneto	£

SECOND-HAND MACHINES ACTUALLY IN STOCK.

ROC, 1909 model, 4 h.p., two speeds, latest spring forks, Bosch magneto, variable pulley, good order, and like new	£
ROC, two speeds, low built, magneto, good condition and order	£

CARS FOR SALE.

We have a very good 20 h.p. Four-cylinder **PRUNI** Car, four speeds and reverse, magneto, side entrance, wi head and tail lamps, which, being rather high built, admirably suited for colonial usage. Just had nearly £ spent on new body, radiator, and general overhaul. W crate free and pay freight charges to any port in t world for **£160.** A bargain.

***STANDARD** Car, 16-20 h.p., six-cylinder, magneto, as new, complete with bood, folding screen, Stepney, head, side, and tail lamps, five-seater, side entrance, excellent condition throughout;	£2
PHŒNIX Quadcar, 8 h.p., two-cylinder, two speeds and reverse, good tyres, new gears, and perfect	£
LOCOMOBILE 5 h.p. Steam Car, good order	£
***N.S.U.** 3½ h.p., magneto, brand new, 26 × 2¼in. tyres, low built	£
***N.S.U.** 3 h.p., magneto, brand new, only 4 left; cash	£
***N.S.U.** 5½ h.p., twin, magneto, low built, only 2 left	£
***REX** 5½ h.p., magneto, low built, good tyres to both wheels, in beautiful condition throughout	£
***BRADBURY** 3½ h.p., brand new 1910 model, standard throughout	£
***TRIUMPH** 3 h.p., magneto, grey finish, Palmer tyres to both wheels, handle-bar control, etc.	£
***TRIUMPH** 3 h.p., low built, in good condition, etc...	£
***KERRY** 5½ h.p., low built, 26 × 2¼in. tyres, in good condition, a splendid sidecar machine	£
***HAMILTON** 4 h.p., low built, handle-bar control, footboards, etc.	£
***ARIEL** 3½ h.p., B. and B. carburetter, good tyres, 26 × 2¼in.. low built, etc.	£1
***F.N.** 1¾ h.p., magneto, F.N. carburetter, handle-bar control, good tyres to both wheels, in perfect condition	£1
***DURKOPP** 2¾ h.p., spray carburetter, black finish, good tyres to both wheels, 26 × 2in.	£1
***CLARENDON** 3 h.p., accumulator ignition, M.O.V., good tyres, green and gold finish	£1
***ROVER** 2¾ h.p., Amac, handle-bar control, footrests, splendid tyres to both wheels, 26 × 2¼in., cream finish	£1
***REX** 5½ h.p., accumulator ignition, Cantilever spring seat, good tyres to both wheels, black finish, enamelling and plating as new	£1
***BRADBURY** 2¾ h.p., three-speed pulley, in good running order and condition	£1
***REX** 5½ h.p., accumulator ignition, splendid tyres to both wheels, 26 × 2¼in., footboards, aluminium finish	£1
***EXCELSIOR** 3 h.p., grey finish, a good climber ..	£1
***MINERVA** 3½ h.p., grey finish, in splendid condition, good tyres to both wheels, 26 × 2¼in.	£1
***FAIRY** 2 h.p., low built, an ideal lightweight	£1
***HUMBER** 3½ h.p., two speeds and free engine, grey finish, as new, 1909 model, all accessories	£3

OUR SPECIAL CASH OFFER.

QUADRANT, 8¾ h.p., spray carb., in good condition, complete with number plates, lamp, horn, and all ready for the road..... **£7**

50/- down, and the balance 5/- per week secures the following:

***QUADRANT** 1¾ h.p., spray, good condition	£
***DURKOPP** 2¾ h.p., good tyres, in Ar condition ..	£1
***EXCELSIOR** 2¾ h.p., long bars, spray carburetter, rubber and canvas belt, etc.	£1
***BRADBURY** 2¾ h.p., three-speed pulley, in good running order	£1
***MINERVA** 1¾ h.p., spray carburetter, in fair condition	£

All machines in good running order before leaving ou works, and tested by experienced men.

Machines marked * are in stock at Halifax, others a London.

MAUDES' MOTOR MART,

THE FAIR FACTORS,
Powell St., HALIFAX.

Telephone: 433 day; 904 night.
Telegrams. "Petrol, Halifax."
Also at 136, GT. PORTLAND ST., LONDON, W
(off Oxford St.)
'Phone: 552, Mayfair. Tels.: "Abdicate, London."

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

SINGER, magneto, £4 10s.; 1¾h.p. Minerva, £6 10s.; both running.—Chivers, Lyte St., Cambridge Heath.

MOTOSACOCHE, magneto, new August, 1908, in perfect running order; £17.—Dr. James, Fessingfield, Harleston, Norfolk.

3¾h.p. Premier Twin, not done 200 miles, usual price £52 10s., sacrifice £48 10s.; 3½h.p. Bradbury, used once, studded tyres, both wheels, usual price £46 12s., to clear £43.—Parker and Son, St. Ives, Hunts.

WHAT Make Motor Bicycle do you fancy? We can supply and give early deliveries. We have actually in stock new Triumphs, Premiers, and Bradburys, cash or instalments.—Parker and Son, St. Ives, Hunts.

TRIUMPH, 1909, good as new, bought August, not ridden during winter Dermatine belt, studded Clincher, lamp and generator, horn, tools, and accessories; buying 1910. £39.—"Beckville," London Rd., St. Ives, Huntingdonshire.

TRIUMPH, 1909, as new, Palmer cords, F.R.S. lamp, two spare valves, complete, ease magneto spares, unused, horn; 36 guineas, or exchange for lightweight, Douglas or Moto-Reve preferred, cash adjustment.—Wallis, c/o Bedwell's, Newmarket.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

3½h.p. Humber, chain drive, free engine, good condition; £10 10s.—Grove, Church St., Kidderminster.

1908 2½h.p. Magneto Rex, excellent condition, rubber studded tyre, adjustable pulley; £17.—Pailthorpe, Evesham.

THROUGH Health, must sacrifice new 25 guinea Rex, 2½h.p., for £18, only ridden 300 miles, good as new.—Glenroy, Middleton Hall Rd., King's Norton.

PREMIERS (twin or single), Douglas, and Enfield.—Birmingham and district agency. Samples on view at depot, and at Stand 131, of the Bingley Hall Exhibition. Trials arranged. Present machines taken in part payment; deferred payments if desired. Few second-hands.—Colmore Depot, 31, Colmore Row (opposite Cathedral Church).

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

3½h.p. Ariel, good running order; £10 10s. for quick sale.—Isaacs, High St., Slough.

3½h.p. 1909 Rex Tourist, new condition, new Michelin non-skid; £28.—Rowland, Salisbury.

TRIUMPH, 1910; delivery from stock after March 31st.—Davenport Vernon, Ltd., High Wycombe.

TRIUMPHS, 1910, delivery from stock; second-hand Triumphs taken in part payment.—Laytons, Bicester.

LATE 1907 Triumph, warranted perfect, detachable non-skids; price £28; low frame.—Harper, Calne, Wilts.

N.S.U., 1¾h.p. Lightweight, magneto, good tyres, V belt, perfect running order; £12.—Box 139, Post Office, Bristol.

3½h.p. Quadrant, 1908, Bosch magneto, with all spares, Clincher tyres, in good condition, machine recently overhauled; £20, or offers.—4,360, *The Motor Cycle* Offices, Coventry.

3½h.p. 1909 Model Humber Motor Cycle, two speeds, free engine, not ridden 500 miles; also castor wheel sidecar; price £42 10s.—T. Baker and Sons, motor engineers, Reading.

3½h.p. Ariel Motor Cycle, in splendid running order; price £10 10s.—T. Baker and Sons, motor engineers, Reading.

2h.p. Triumph Motor Cycle; a bargain, £7.—T. Baker and Sons, motor engineers, Reading.

2¾h.p. Quadrant Motor Cycle, splendid condition; price £10.—T. Baker and Sons, motor engineers, Reading.

5h.p. Twin Rex de Luxe, two-speed, 1909 model, not ridden 400 miles, guaranteed perfect and uncratched; price £40.—T. Baker and Sons, motor engineers, Reading.

3½h.p. Brown Motor Cycle, guaranteed in perfect condition, magneto, splendid hill-climber; trial anywhere; distance no object; price £17 10s.—Norton, 138, Westgate St., Gloucester.

1910 3½h.p. Speed King Rex, specially tuned up by the Rex Co., 2in. wired-on Dunlops, Lycett rubber belt painted French grey, new in crate, as delivered; buying Rex twin; £38.—Herne, Treoda, Whitchurch, near Cardiff.

6h.p. Bat-J.A.P., spring frame, new 2½in. by 2¼in. Continentals and Whittle belt, Amac and entire h.b. control, lamp, generator, horn, spares, thorough order, new condition; £25; will ride 100 miles.—Herbert Titt, Warminster.

1909 4½h.p. Minerva throughout, spring frame, Continental tyres, steel studded back, two accumulators, pedals; bargain, sell £30; carries sidecar; 1909 Montgomery sidecar, cost 14 guineas, sell 7 guineas.—Woolford, "The Chestnuts," Binfield, Bracknell.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

SPECIAL CASH BARGAINS.

3	h.p. BRADBURY, very smart and good	£10 0
1906	3½ h.p. REX, spring forks, M.O.V.	£15 10
4	h.p. STEVENS, h.-b. control, Palmers	£9 15
3	h.p. CLYDE, magneto ignition	£14 10
2¾	h.p. KERRY, light and low, spray	£9 10
3½	h.p. REX, 22in. frame, trembler coil	£7 10
3½	h.p. ROVER, 26×2¼in. Palmers	£11 10
3	h.p. BEESTON-HUMBER, spray	£9 10
2	h.p. QUADRANT, h.-b. control, spray	£5 10
2	h.p. F.N.-SAROLEA	£4 5
2¾	h.p. DE DION pattern, spray	£5 10
1½	h.p. MINERVA, wants attention	£3 5
3	h.p. HUMBER, splendid climber	£5 10

Monster list on application. Cash offer considered.

SPECIAL OFFER.

26×2in. and 28×2in. beaded edge covers, 13/6 each. These are well-known standard make. New and perfect. Tubes, 4/11. Bargain list on application. Approval.

5½ h.p. TWIN REXES, spring forks, long bars, low frames, aluminium finish, blue lines, 26in. wheels **£16 10**

Good sidecar machines. Exchanges or easy payments.

Bargains in Brand New 1909 REXES 1909.

The 5 h.p. Twin de Luxe (two speeds and free engine) is the best passenger mount on the market. No thumping and overheating on hills. Change your willing but under-powered single for one of these, and give your passenger a pleasant ride instead of walking, exercise.

1909 3½ h.p. Tourist REX, with 1910 forks, etc. £38 10
1909 5 h.p. REX DE LUXE, two-speed £48

Compare these with 1910 prices.

CARS.

Any reasonable exchange considered. Room wanted.

1908 16 h.p. Four-cylinder REMO, Bosch magneto, hood, screen, lamps, clock, speedometer, etc.; cost £425; accept £165 0
Brand new O.T.A.V. Voiturette; cost 102 gns.; hood, lamp, etc. £60 0

EASY PAYMENTS.

5/- weekly and reasonable deposit secures any of these machines. All tested and ready for the road.

3 h.p. CLYDE ..	£15 0	2¾ h.p. KERRY	£9 10
3 h.p. ARIEL ..	£10 0	2½ h.p. ARIEL	£9 13
3 h.p. HUMBER ..	£10 0	2¾ h.p. M.M.C.	£9 10
3½ h.p. REX	£10 10	2 h.p. HUMBER ...	£8 10
3½ h.p. ROVER ..	£14 0	3 h.p. BRADBURY	£10 10

1910 REXES. LIBERAL EXCHANGES.
Deliveries from stock of all models.

SIDECAR MACHINES.

1909 Two-speed TWIN REX DE LUXE	£39 0
1909 5 h.p. REX Speed King, a flier	£32 10
1909 5 h.p. TWIN REX, nearly new	£32 10
1908 TWIN REX, magneto, spring forks	£26 10
Special Two-stroke REX DE LUXE	£39 0
6 h.p. N.S.U., spring forks, magneto	£24 10
5½ h.p. REX DE LUXE, Roc clutch	£25 10
6 h.p. TWIN ANTOINE, spring forks, like new	£16 10

1910 DE LUXE SIDECARS.

Special detachable fittings, no second adjustment necessary, 26×2¼in. tyre, art cane or best wicker body, £5 17s. 6d. Usual rigid type, art cane, £4 17s. 6d. Illustrated pamphlet on application.

POPULARS.

1910 3½ h.p. REX Special, second-hand	
1909½ HUMBER, brand new	£34 10
1908 Two-speed HUMBER, nearly new	£29 10
1909 4 h.p. N.S.U. de Luxe, nearly new	£29 10
1909 3½ h.p. Magneto REX, nearly new	£29 10
1909½ 3½ h.p. REX Speed King, new	£35 0
1909 Special 3½ h.p. Competion REX	£30 0
1908 3½ h.p. Magneto REX, H.B. control	£24 10
1908 3½ h.p. PHELON & MOORE, magneto	£31 0
1908 3½ h.p. Magneto MINERVA	£23 10
Two-speed PHELON & MOORE, accumulator ..	£21 10
3½ h.p. Magneto QUADRANT, spring forks	£24 8
4 h.p. ANTOINE, high tension magneto	£18 10
3 h.p. Magneto SIMMS, 2½in. Palmers	£18 10
3 h.p. SINGER, V belt, H.T. magneto	£16 10
1½ Minerva Engine	£1 5
Xl-all Spring Forks	9/6
Tee Bee Spring Forks	9/6
1910 Amac Carburetter	£1 0
8-10 h.p. two-cylinder water-cooled Rex Engine, good order	£15 0

1,000 1908-9 Magneto Machines wanted for spot cash. Full trade value given.

MOTOR BICYCLES FOR SALE.

£15.—Absolutely no offers; no rubbish.—2h.p. Quadrant-engined lightweight, modern fittings, spray, spring forks, Triumph shape bars, footrests, stand, carrier, etc., V belt, 2in. tyres, very low frame, torpedo tank, excellent condition throughout, fast, reliable, smart, guaranteed, French grey finish; ride interview.—Smith, 59, Cowley Rd., Oxford.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

BRADBURY, 1910 models, and exchanges.

BRADBURY, the rigid machine.

BRADBURY, the well balanced engine.—Sole agents for N.W. London, Gardner, 6a, High St., Hampstead.

NYE'S!—1910 2½h.p. Moto-Reve, soiled only; £33.

NYE'S!—1910 P. and M., trial machine; £52 10s.

NYE'S!—1909 5-6h.p. 4-cyl. F.N., as new; £33.

NYE'S!—1909 3½h.p. Rex, with 1910 improvements; £27.

NYE'S! 1909 5-6h.p. V.S., two-speed; £35.

NYE'S!—To be Sold by Tender to make room for new stock.

NYE'S!—2¾h.p. Brown, magneto; £17.

NYE'S!—3½h.p. Rex, 1907; £10.

NYE'S!—2¾h.p. Kerry; £9 10s.

NYE'S!—3½h.p. N.S.U., nearly new; £22.

NYE'S!—1908 Motosacoche, spring forks; £14.

NYE'S!—1909 3½h.p. Humber, two speeds, nice condition; £29.

MANY Others to select from.—69, Leather Lane, Holborn London. Tel.: 6299 Holborn.

1910 2¼h.p. Shaft-drive Two-speed F.N., ridden 200 miles £30.

3½h.p. Minerva, in good condition, new R.O.M. tyre, £14.

3½h.p. Twin Peugeot, magneto, very low, good tyres; £21.

TRIALS of these machines with pleasure on any of the hills in Kent.—Frank Whitaker, Green Street Green, Orpington.

2½h.p. Ariel, splendid running order; £7.—Aust, 864, High Rd., Tottenham.

3½h.p. Centaur, good working order; £10.—Wiles, 40, Carlton Rd., Mile End, E.

3½h.p. Rex, excellent condition; lowest £9 15s.—231, New King's Rd., Fulham.

2½h.p. Minerva, new condition; £10.—Barrett, 332, High St. N., Manor Park.

3½h.p. Centaur, good working order; £10.—T. Wiles 40, Carlton Rd., Mile End, E.

WHITTLE'S.—Triumph, 3½h.p., late 1907, magneto, like new; great bargain to clear, £24.

WHITTLE'S.—F.N., 4½-5h.p., 4 cyls., magneto, Amac, h.b. control, nearly new; £28.

WHITTLE'S.—Fairy, 6-8h.p., twin, latest No. 6 Chater-Lea spring forks, like new; £18 18s.

WHITTLE'S.—N.S.U. 3½h.p., late 1907, perfect; bargain, £12 10s.—Whittle's Motor Exchange, Earlsfield.

5h.p. Twin Peugeot, French grey; photo; £15. — 162, Forest Rd., Walthamstow.

ROVER, 6h.p., tools, lamp; trial given; £70.—Upper William St., St. John's Wood.

4-CYL. F.N., 4½h.p., magneto, spring forks, like new; £25.—17, Algarve Rd., Wandsworth.

3¼h.p. Rex, h.b. control, R.O.M. back tyre, butted tube; £10.—5, Ivelev Rd., Clapham.

3½h.p. Rex, magneto, late 1908, condition like new; £22.—Jermy, Frimley Green, Surrey.

TRIUMPH, 1910, delivery now from stock; £48 15s —Rusticana 523, High Rd., Chiswick.

3½h.p. Wolf, re-enamelled, overhauled; photo; £12 10s.—H., 59, Houston Rd., Forest Hill.

3h.p. Humber, free engine, new accumulator, excellent condition; £10.—Perrin, Ewhurst, Surrey.

3½h.p. Clyde Motor Cycle, magneto, splendid condition; £10.—4a, Mount Row, East Rd., N.

1909 3½h.p. Triumph, as new, not done 800; appointment; £37 10s.—50, Manor Rd., Brockley.

3½h.p. Rex Tourist, low, excellent condition; 11 guineas.—2, Hartleford St., Kennington Oval.

1908 V.S. Twin, magneto, Truffault spring forks; £23.—8, Barrett St., Manchester Sq., London.

3½h.p. Ariel Fleet, nothing better; 10 guineas; compulsory sacrifice.—313, St. Ann's Rd., Harringay.

MOTOR BICYCLES FOR SALE.

HAMPSTEAD.—3h.p. Chase, good condition, all accessories; £12, bargain; Chater fittings.

HAMPSTEAD.—F.N., 5-6h.p., late 1909, low frame, splendid condition, all accessories; £25.

HAMPSTEAD.—3½h.p. Quadrant, magneto, handle-bar control, splendid order; £18; all accessories.

HAMPSTEAD.—Brand new 4-cyl. F.N., 5 to 6h.p. latest model, guaranteed pe t; bargain, £38.

HAMPSTEAD.—2¾h.p. vertical 1908 Minerva, splendid condition, with all accessories; £11.

HAMPSTEAD.—3½h.p. Triumph, 1909, splendid condition, with all accessories; bargain, £35.

HAMPSTEAD.—3½h.p. 1909 free engine Triumph, splendid condition, all accessories; £38 10s.

HAMPSTEAD.—1910 2¼h.p. two-speed F.N.'s; £40; no extra for easy payments.

HAMPSTEAD.—1910 Rexes, all models in stock; no extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; exchange or gradual payments taken; no extra.

HAMPSTEAD.—Premier, 1910, twin, as new, all accessories; great bargain, £40 only.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting; easy payments taken, 5 per cent. extra.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4½h.p., late model, splendid condition, all accessories; £20, special bargain.

HAMPSTEAD.—F.N. 4½h.p., latest model, handle-bar control, condition splendid, with accessories; £24.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Lincoln Elk, latest, 1909, 3h.p., splendid condition, with all accessories; £18.

HAMPSTEAD.—£5 upwards allowed on cycles in part payment for new motor cycles.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD.—Moto-Reve, 1908, twin, magneto and spring forks, all necessories; £17

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexs, Humber, etc.; exchanges or gradual payments.—Rey, 5, Heath St. Tel.: 2678 P.O., Hampstead.

3h.p. Triumph, magneto, perfect condition, Riches tubes, accessories; £21.—54, Wellington Rd., N.W.

3h.p. Werner Bicycle, good running order, Whittle belt; bargain, £6 10s.—109, Broadway, Cricklewood, N.W.

5h.p. Vindec, magneto, B. and B., h.b. control, guaranteed perfect; £28; trial.—15, Lychett Rd., Bromley, Kent.

3½h.p. Rex, long bars, low seat, excellent condition; bargain, £10.—C. H., 27, Anselm Rd., Fulham, S.W.

2¾h.p. Peugeot, good condition; £9 10s.—Apply after 5 p.m., Smith, 31, Cambridge Mansions, Battersea Park.

3h.p. Brown Motor Cycle for sale, in splendid condition; sacrifice £10 10s.—Apply, 163, Forest Lane, Forest Gate, E.

F.N., 2¾h.p., spring forks, h.b. control, accessories, spares; £12 10s.—63, Hampstead Way, Golder's Green.

BARGAIN, £7 10s.—2¼h.p., Palmers, as new, ready drive away; must sell.—134, Highgate Rd., Kentish Town.

1908 3½h.p. Standard Minerva, accumulator, in good condition; £17.—Ellis, 13, London Rd., East Grinstead.

3h.p. Fafnir-Chater-Lea magneto, Brown-Barlow, handle-bar control; £13, offer.—Motor, 66, Manor Rd., Brockley.

LOOK.—1908 3½h.p. Brown, splendid condition; £16 10s.—Motorist, 149, Sandringham Rd., Dalston, London.

2½h.p. J.A.P., Chater-Lea frame, fast, good hill-climber; trial given; £15.—109, Wood St., Walthamstow.

TWIN Moto-Reve and spares, not soiled, perfect condition; seen after 7.30.—50, Lansdowne Rd., Clapham, S.W.

1909 Triumph, ridden 2,200 miles, as new, lamp, spares; £35.—Mullett, Kingsley Av., West Ealing, London.

MINERVA-B.S.A., Lightweight, 1¾h.p., spring forks, well equipped; £7; offers.—Liddell, 9, Heath Villas, Hampstead.

FAFNIR 3½h.p., Chater-Lea, splendid condition; £12 12s.; sidecar, £2 10s., and spares.—29, Acre Lane, Brixton, S.W.

3½h.p. Minerva Motor Bicycle, fine condition, low seat, long handles; 17 guineas, or nearest.—Jeffery Tring.

2½h.p. F.N., going order, two accumulators; £7, accept push bike and cash.—Smith, 8a, Mildmay Av., Mildmay Park.

2½h.p. Zedel Lightweight, Lamberjack, in perfect running condition; £8 10s.—Apply, W. Piner, Colnbrook, Middlesex.

Farrar's Motor Works,
Square Road, HALIFAX.

Telephone 910.

We have secured a few BRAND NEW 1909½ 5 h.p. Twin REX DE LUXE machines. SPECIFICATION: 5-6 h.p. twin engine, Roc two-speed gear and free engine, handle starting, Bosch magneto, B. and B. carburetter, h.-b. control, Continental rubber non-skid tyres, Rex spring forks, and cantilever seat. Our price £48, our price.

This year's pattern will cost you £62.

ALSO a few new 1909 Twin 5 h.p. REX Tourist Models. Our price £37, our price.

ALSO a few New 1909 3½ h.p. REX Tourist Models. Our price £35, our price.

CASH, CREDIT, OR EXCHANGE.

7-8 h.p. PEUGEOT, h.b. control	£19	0
3½ h.p. 1909 BROWN, magneto, h.b. control	£21	0
3½ h.p. TRIUMPH, magneto	£21	0
5-6 h.p. Twin REX, magneto, h.b. control	£20	0
1910 3½ h.p. REX Tourist, brand new	£45	0
1909½ 3½ h.p. REX Racer, soiled only	£32	10
1908 Twin REX, magneto, h.b. control	£26	0
5 h.p. Twin REX, spring forks, 26" wheels	£16	10
6 h.p. Twin REX and Sidecar	£20	0
5 h.p. CLYDE, magneto, Druids	£15	0
5 h.p. VINDEC, Bosch magneto	£16	0
5 h.p. VINDEC, magneto, H.B. control	£18	0
1910 3½ h.p. PREMIER, twin-cylinder	£45	0
1908 3½ h.p. REX, almost like new	£22	0
1908 3½ h.p. GRITZNER, mag., free engine	£18	0
1908 REX Lightweight, fine condition	£17	0
1907 3½ h.p. REX, lovely goer, very smart	£15	15
3½ h.p. N.S.U. magneto ignition	£17	0
3½ h.p. REX, M.O.V. spray	£10	10
3½ h.p. 1906 REX, M.O.V., spring forks	£14	0
3½ h.p. REX, Bosch magneto, fine goer	£16	0
Brand new 1909 Twin REX DE LUXE	£48	0
Brand new Twin REX Tourist	£37	0
Brand new 3½ h.p. REX Tourist	£35	0

LIGHTWEIGHTS.

1908 N.S.U. Lightweight, Bosch magneto	£17	0
1908 REX Featherweight, magneto	£18	0
Twin-cylinder FAIRY, very smart	£14	0

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.

3½ h.p. Rex £9 | 2¾ h.p. Stevens £7
3½ h.p. Rex, M.O.V. £10 | 3 h.p. Chater-Lea £9

£5 down SECURES ANY OF THESE. BALANCE 5/- PER WEEK.

3 h.p. Vindec, mag. £16 | Twin Fairy £14
3½ h.p. Rex, mag. £16 | 3½ h.p. 1906 Rex £14

Push bikes accepted part payment.

BRAND NEW 1909
5½ h.p. O.T.A.V. VOITURETTES,
complete with hood, lamps, tools, and spares, £60 each. Magneto ignition £5 extra.

6 h.p. REX LITETTE Tricar, water-cooled, two speeds, £35.

FARRAR'S HALIFAX SIDECARS.

WE MAINTAIN

Owing to our unique mode of attachment and correct balance we have in the "Halifax" the best and safest sidecar on the market. Note where the front arm grips the centre of the sidecar, and compare this design with the lob-sided and unmechanical attachment adopted by some makers.

£4 17s. 6d. complete with best tyres.

Twelve months' guarantee. Discount to the trade.

MISCELLANEOUS BARGAINS.

Rigid Sidecar, 26in. wheel	£3	10
" " 28in. "	£3	0
Montgomery Sidecar, coach-built	£5	0
Two-speed Gear Box, new, unused	£3	0
8 h.p. Twin Rexette Engine, two speeds	£12	0
5 h.p. M.M.C. Engine, W.C.	£5	0
Carburetters—New 1910 Amac, variable jet	27/-	
New 1910 B. and B.	27/-	
New 1909 Amac	19/6	
Old carburetter in part payment.		

MOTOR BICYCLES FOR SALE.

TRIUMPH, 1906, 3h.p., accumulator, perfect order, good tyres and spares; £16.—Marriott, Park St., near St. Albans.

£6.—Thomas Lightweight, Whittle belt, long bars, very low, good condition.—H. Lemm, 14, East Peabody Sq., Chelsea.

ROC, 4h.p., magneto, two speeds and free engine; exchange modern lightweight.—Browning, 49, Grove Vale, E. Dulwich.

TRIUMPH, 1909, perfect condition, Palmers; £35.—Metropolitan Machinists Co., 75, Bishopsgate Without, London, E.C.

1¾h.p. Lightweight, N.S.U., 1908, magneto, new tyre, excellent condition; £16, offers.—8, H.R., 16 George St., Croydon.

TRIUMPH, 1907, Palmers, horn, lamp, spares; £28.—Metropolitan Machinists' Co., 75, Bishopsgate Without, London, E.C.

F.N., 4-cyl., 4½h.p., very little used, spring footrests, speedometer, brand new back tyre; £28.—Neild, Broomfield, Chelmsford.

ROYAL Enfield, 3½h.p., Minerva, Longuemare, Palmers, good condition; £10 10s.—Goddard, 41 Avenue Rd., Brentford.

2¾h.p. Brown, low frame, 26 by 2¼ tyres, condition as new, not ridden 500 miles; £15.—119, Lough borough Rd., Brixton.

3h.p. Raleigh, perfect throughout, spring forks, spring saddle, spares, accessories; £18.—166, Selhurst Rd., South Norwood, S.E.

TRIUMPH, genuine, excellent condition throughout, magneto; £23; bought car.—Darby, c/o Joslins, Market Place, Chelmsford.

TWIN Rex, Mabon clutch, spring forks and cantilever seat-pillar new tyre, splendid machine; £17.—6 St. Faith's Rd., Tulse Hill.

1908 N.S.U., 3½h.p., 26 by 2¼ Peter-Union tyres, lia belt, C.A.V. accumulators, little used; £16 10s.—89, Avenue Rd., Acton.

LIGHTWEIGHT, 2¼h.p., just overhauled, handy little mount, vertical engine, Watawata; bargain, £5.—730, Garratt Lane, Tooting, S.W.

3h.p. Fafnir, Chater-Lea frame, handle-bar control, footboards, adjustable pulley, tyres as new; 12 guineas.—White, 5, Hargrave Rd., London, N.

5-6h.p. 1910 Bat, M.O.V., once used only; first cheque £49 secures.—Seen at Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

TRIUMPH, only done 3,700, guaranteed perfect, and as new; £35, including spares and accessories.—106, Empress Av., Ilford.

2¾h.p. Quadrant, perfect condition; £10, or would accept push bike and cash.—Address, F. F. Smith, Baker St., Enfield, Middlesex.

3½h.p. Chater-Lea, Peugeot engine, excellent Continental tyres, fast and perfect; £14.—4, France St., Artillery Place, Woolwich.

REX Twin, 5h.p., new last December, only run 200 miles, with all accessories; £35.—Aldridge, 12 Brownlow St., Holborn, London.

3½h.p. Minerva, re-enamelled grey, sprung back and front, Palmer cord, unpunctured Riches tubes; £15.—74, High St., Wimbledon.

1910 Moto-Reve, 52 by 70, twin, 2½h.p., Stewart speedometer, butt-enders, spares; £35, offers.—Elsie, 51, Trebovir Rd., London.

3½h.p. Rex, magneto, December, 1908, handle-bar B.B., accessories, perfect condition; £22 10s.—56, Riverview Grove, Chiswick.

2¾h.p. Kerry, Palmer cords, Chater frame, low position; £12, or near offer; after 6 p.m.—A.G., 226 Southampton St., Camberwell, S.E.

£11.—2¾h.p. F.N., engine just overhauled, cost £4, new Duco lamp, belt, and coil, tyres unscratched, splendid goer.—179, Selhurst Rd., S.E.

MOTOSACOCHE, excellent order, accumulator; £16 bargain; trial and inspection within 20 miles.—Rector, Wickham, Halstead, Essex.

1909 4h.p. Matchless-J.A.P., Nala two-speed, magneto R.O.M., Whittles, Amac, good condition; £35.—MacKenzie, Oakamoor, West Byfleet.

4-CYL. F.N., fine condition, all accessories, magneto practically new; £23; after 6; lower power wanted.—48, Streatly Rd., Kilburn, N.W.

3½h.p. M.M.C., M.O.V., No. 6 Chater, rubber studded Clinchers, 1910 B. and B., h.b.c., very low, nearly new; £19.—20, Duke St., Piccadilly.

2½h.p. Kerry, 3h.p. Fafnir, Chater fittings, both excellent condition, running order; cheap.—B., Wentworth House, East Finchley, N.

MINERVA, 3½h.p., spring forks, Continentals, low reliable, spares, good condition; £13.—14a, Ecking ton Gardens, Monson Rd., New Cross.

3½h.p. Fleet Brown-Barlow, Dermatine, Dunlops 26in. wheels, perfect, reliable; £10, offers.—Letters, 21, Newton Rd., Cricklewood.

3½h.p. Minerva, low, splendid condition, 26 by 2½ Continentals, spring boards; cash offers, or lower power and cash.—Colonial Stores, Colnbrook.

AN F.N. 4-cyl. 4½h.p. Bicycle, with speedometer and accessories, ridden only 1,435 miles, is on sale at the F.N. Depot. Cost £57, selling £24.

THE MOTOR CYCLE

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NORTHERN CLUBS AND THE AFFILIATION QUESTION.

By GEOFFREY W. LIDDLE, Hon. Sec. Middlesbrough and District M.C.C.

THE meeting of Northern riders of 1911 at Richmond or elsewhere must not, in my opinion, be run on the same lines (perhaps I should say "want of lines") as this year. I mean by this statement that the committee must organise a good programme of some kind, and not hold a conference of the nature of the recent one. Personally I should say that better results would accrue if the Good Friday meeting were taken in hand, and organised by those who are responsible for the working of the Northern League of Motor Cycle Clubs, and the meeting made the opening event of each year.

To Discuss the Affiliation Question.

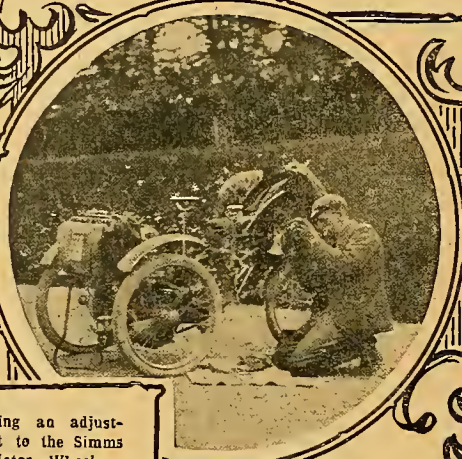
With regard to the most suitable venue for leading motor cyclists representing Northern clubs to meet and discuss the affiliation question, I have received communications from several hon. secretaries that York would be a better centre than Leeds. I would be very glad if club secretaries would let me have their views on the matter. All clubs are invited to elect a representative on the committee, as it was decided at the Richmond conference that the Auto Cycle Union should be approached with a view to affiliation of all the Yorkshire clubs for a stated lump sum on the same lines as the North-Eastern Automobile Association. I shall be pleased to have the addresses of the nominees of all clubs interested, so that I can notify them of intended meetings. I think all will agree that the possibilities of advancing the general welfare of riders of power-propelled cycles arising out of the Northern Meet of Motor Cyclists are almost inestimable, especially if some scheme could be devised whereby the gathering would be in the hands of, or at least under the government of, the A.C.U. The Easter meeting would, I think, be a fine opportunity for that body to hold some form of competition in which the Northern motor cyclists (who, I think, are left somewhat in the cold by the A.C.U., except for permit and licence fees and proclamations, which latter are forgotten, evidently, as soon as made) could take part.

Work for the Governing Body.

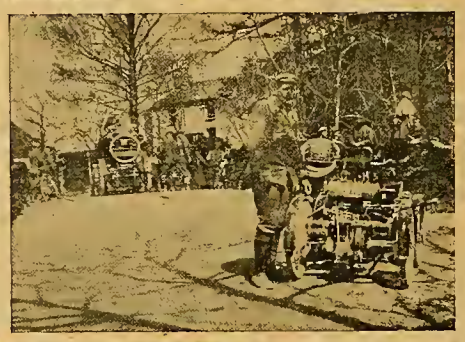
As a member of the Committee of Eight two or three years ago, I stated my views that the A.C.U. should not expect a club to pay for permission to hold its own competitions, but should manage its own affairs as a club, and devote the funds received from affiliated clubs to the improvement of the lot of the general body of motor cyclists, viz., in efforts to reduce the exorbitant licence and taxation fees, or take up cases of unreasonable fines inflicted on unfortunate riders who can only just afford ordinary running expenses.

As a member of the aforesaid Committee of Eight, I was once dubbed "the silent member," but I thought at that time anything I might venture to say would be waste of breath. However, I now think the time has arrived when the whole of the clubs in the country should be pressed to combine for their mutual good, and here let me openly avow that the Middlesbrough Club has not at any time been directly invited to become affiliated to the A.C.U., nor have any advantages derived from such affiliation been pointed out to the officials. This may read somewhat strangely, but it is nevertheless true.

Tenth Anniversary of the Thousand Miles Trial.



Making an adjustment to the Simms Motor Wheel.

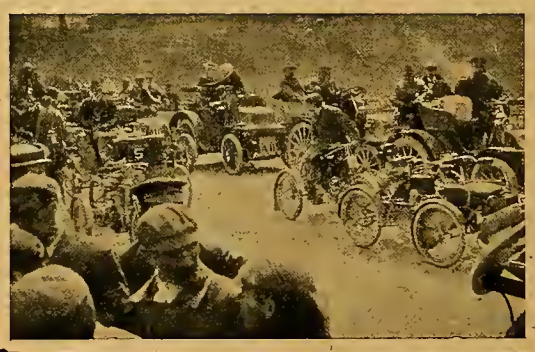


Rear view of the Royal Enfield Quadricycle.

to the Botanical Gardens, Manchester, where the machines had been brought out to be cleaned.

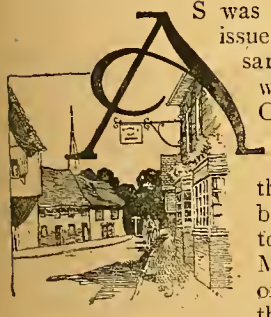
Checking one of the motor tricyclists.

J. W. Stocks changing covers on the Ariel Quadricycle.



Some of the competing vehicles waiting to enter Kendal The rider of the tricycle in the centre is Herbert Ashby. S. F. Edge and Lord Montagu may be seen in the foreground.

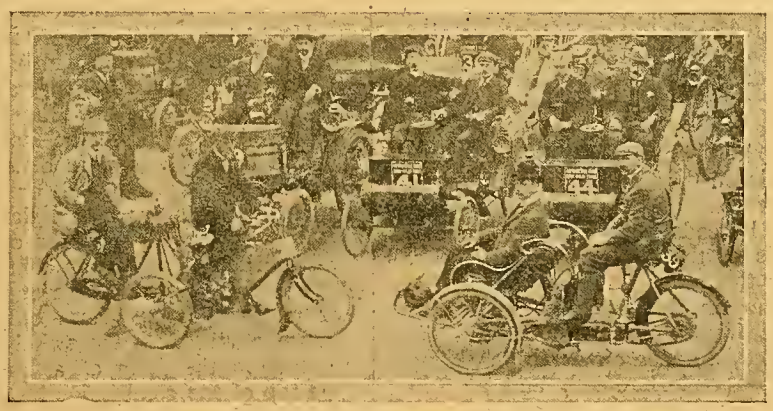
TENTH ANNIVERSARY OF THE THOUSAND MILES TRIAL.



AS was briefly mentioned in the last issue, this year is the tenth anniversary of the Thousand Miles Trial, which originated with Mr. Claude Johnson, the secretary of the then Automobile Club. It has now been arranged that a celebration luncheon will be held at Northampton, the town at which the Thousand Miles Tour competitors lunched on the last day of the tour on their journey from Nottingham to London. It has been suggested, among other items, that the participants in the gathering should bring with them number plates, prizes, photographs, and other trophies of the event, and that a collection of photographs of the participants, together with a record of the original event and of the celebration, should be placed in an iron box and deposited with the Royal Automobile Club.

A Brief History of the Thousand Miles.

The Thousand Miles, as it was called, was the first British long distance motor trial. The Club had previously held tours and awarded prizes for the best performances, but nothing in the nature of an organised trial and demonstration had previously been attempted. Present day motor cyclists will naturally be interested to know if there were any motor cycles which took part in this historic event. In 1900 there was no Auto Cycle Union, but the Automobile Club, recognising the importance of fostering the motor cycle movement, graciously permitted motor quadricycles and tricycles to take part, these being the only forms of motor cycle which were on the market in 1900. Motor bicycles were even then in use, but they had not emerged from the experimental stage, and beyond a few early models which were in the hands of a few enthusiasts who had imported them from abroad motor tricycles and quadricycles were the vogue among those who favoured the motor cycle type of vehicle. Below will be found a list of the tricycles and quadricycles which started from London on April 23rd, 1900, with the names of the riders. Among the latter was J. W. Stocks, now the manager of De Dion Bouton, Ltd. With him as passenger was Cecil Edge, brother of S. F. Edge, who, our readers will perhaps remember, succumbed to a serious chest complaint in July, 1908. E. S. Cheel has not been heard of in motor circles since the trial, but his Ariel tricycle, with Whippet trailer, which was practically a lady's push bicycle frame without the front fork but with the rear wheel and pedalling gear, and was attached to the rear of a tricycle, made some very fast times on the hills. Buck (2¼ h.p. M.M.C. tricycle), the rider of the Simms motor wheel, and Herbert Ashby (Empress tricycle) have dropped out of motoring circles. S. Begbie (Century tandem) is still connected with the industry, as also are A. J. Wilson (Ariel tricycle) and E. M. Iliffe (Enfield quadricycle).



The Century Tandem and Ariel Tricycle with Whippet trailer at one of the exhibitions.

A List of Starters.

No. 3, 3⅛ h.p. Ariel quadricycle, driver J. W. Stocks, passenger Cecil Edge; No. 4, 2¼ h.p. Ariel tricycle with Whippet trailer, driver E. S. Cheel; No. 12, 2¼ h.p. M.M.C. tricycle, rider Buck; No. 20, 2¾ h.p. Simms motor wheel (a tricycle with two wheels in front, one behind, front driving, and rear steering); No. 39, 3 h.p. Century tandem, driver S. Begbie; No. A 16, 2¼ h.p. Ariel tricycle, rider A. J. Wilson; No. A 20, 2¾ h.p. Empress tricycle, rider Herbert Ashby; No. A 28, 2¼ h.p. Royal Enfield quadricycle, driver E. M. Iliffe, passenger W. Grew.

The makers of the Enfield quadricycle and the Ariel quadricycle and tricycle are to-day making modern motor bicycles, and the makers of the Simms motor wheel are at work on magnetos. F. T. Bidlake, although not a competitor in the tour, accompanied the *cortège* for some considerable distance. I believe he finally retired somewhere near to Kendal, and completed the tour per motor car.

The route was: First day, London to Bristol *viâ* Marlborough and Bath. Second day, an exhibition of all the competing vehicles was held in the Drill Hall, Bristol. The third day was occupied in journeying from Bristol to Birmingham, a short stay being made at the Winter Gardens, Cheltenham, where another informal exhibition took place.

The First Hill-climb.

The fourth day was entirely devoted to another exhibition in Bingley Hall, Birmingham, and on the fifth day the competitors tackled the first serious hill on the journey, viz., Taddington Hill on the day's route between Birmingham and Manchester, *viâ* Matlock and Buxton. In this hill-climb A. J. Wilson on his Ariel tricycle made an astonishing performance, beating the Panhard car driven by the Hon. C. S. Rolls, which was the fastest vehicle on the road in England at that time. Needless to say, pedalling was not barred in 1900. If it had been, the writer does not hesitate to say that very few of the quadricycles or tricycles would have completed the journey.

Tenth Anniversary of the Thousand Miles Trial.—

On the Saturday following (the sixth day) another exhibition was held in the Manchester Botanical Gardens. Monday (the eighth day) was devoted to a hill-climbing competition on Shap Fell, the journey from Manchester to Kendal being taken in the morning and early afternoon of that day. The Empress motor tricycle and Ariel tricycle and trailer were first and second respectively of the motor cycle vehicles, the steepest portion of the ascent being used for the purposes of the competition.

Ascent of Dunmail.

On the ninth day another hill-climb was held on Dunmail Raise between Kendal and Carlisle, when the Ariel and Enfield quads and Empress tricycle did well, and finished near the top of the list. In this as well as most of the other hill-climbs, the quadricycles had to drop their passengers, and both tricyclists and quadricyclists gave more than L.P.A. to their single-geared steeds. It will thus be seen that the two-speed gear problem was with us even at that early period. On the tenth day in the ascent of Birk Hill, between Carlisle and Edinburgh, the motor cycles occupied the following positions: Ariel quadricycle second, Ariel tricycle and trailer third, M.M.C. tricycle fourth, and Enfield quadricycle fifth. The speedy motor cycles were only beaten by one car, the 12 h.p. Panhard belonging to the Hon. C. S. Rolls.

On the eleventh day an exhibition was held in the Waverley Market, Edinburgh. On the twelfth day the route was from Edinburgh to Newcastle-on-Tyne, and the writer particularly remembers what a stiff ride that was along the Berwickshire coast and against a strong gale of wind. The thirteenth day was devoted to an exhibition in the Cambridge Drill Hall, Newcastle-on-Tyne, and on the fifteenth day, *en route* between Newcastle and Leeds, the vehicles were displayed in the grounds of the Railway Hotel, York. On the sixteenth day there was an exhibition at the Drill Hall, Leeds, and on the seventeenth day the participants journeyed from Leeds to Sheffield *viâ* Harrogate and Bradford, an open air exhibition being held in both Harrogate and Bradford, and also in Sheffield on the following day.

Speed Trials at Welbeck.

On the nineteenth day, while most of the competitors journeyed from Sheffield to Nottingham, some diverged to Welbeck, and indulged in speed trials. In this event the Ariel tricycle and trailer was third and the Century tandem sixth. The twentieth and last day was the longest run of the whole tour, viz., Nottingham to London *viâ* Northampton, 123½ miles.

At the end of this article will be found a list of those who finished the trial with an average speed of twelve miles an hour throughout. Of those who did not get through, the rider of the 2¼ h.p. M.M.C. tricycle, who pluckily stuck to his task, was eventually forced to retire somewhere in Yorkshire, either at Leeds or Bradford. The 2¾ h.p. Simms motor wheel was *hors de combat* rather early in the tour, and, as far as the writer can remember, was not seen after Birmingham. A. J. Wilson (Ariel tricycle) retired on the Scotch border through the batteries running down—a frequent source of trouble, particularly if accumulators were used. The pioneers of the motor tricycle, De Dion Bouton, Ltd., always recommended dry batteries, and it would appear that their experience was correct, and is now being borne out by the reintroduction of dry batteries in cases where the high-tension magneto is not fitted.

Alternately Motoring and Repairing.

Although it was not the original intention of the organisers that the exhibitions should have served any other purpose than a public display of the competing vehicles, exhibition days were often the saving clause with more than one of the vehicles; in fact, it has been said since the tour was held that it was a case of one day motoring and one day repairing, which in many instances was very true. If anything like the stringent regulations of modern times had been applied to the Thousand Miles Tour it is more than probable that no awards could have been made.

As an instance of what the tour did for motoring generally, it may be mentioned that the year 1900 was quite a boom year as far as the sale of motor tricycles and quadricycles was concerned. Comparatively large numbers of these machines were bought, but the introduction of the motor bicycle about 1901-1902 and other circumstances proved disastrous to the popularity of tricycles, and with the advent of the bicycle came the forecarriage attachment, and then the tricar, so that "trikes" and "quads," as they were called, very soon became back numbers.

Spectators on the Route.

No motor cyclist who witnesses a modern trial and did not see the Thousand Miles Tour can have any idea of the thousands of spectators who lined the roads. People drove and rode horses and were otherwise conveyed miles to see the motors pass. The crowds in the large towns were densely packed, and only a narrow lane was allowed for the vehicles, the drivers often experiencing great difficulty in getting through.

Riders of modern motor cycles fitted with exhaust valve lifters, handle-bar control, variable gears, and free engine clutches will sympathise with the pioneers of motor cycling, whose only means of controlling the machines were the switch handle and an exhaust release in the form of a small compression tap on the top of the combustion head, through which a portion of the exploded charge escaped with a loud spitting noise. The rider pedalled to get going, and then the tap was closed (it was operated by a long rod and a lever on the top tube), and the engine took up the drive.

The Survivors of the Trial.

No. 3, Ariel Quadricycle, J. W. Stocks; No. 4, Ariel tricycle and trailer, E. Cheel; No. 39, Century tandem, S. Begbie; No. A 20, Empress tricycle, H. Ashby; No. A 28, Enfield quadricycle, E. M. Iliffe.

So ended the pioneer reliability trial, from which have grown all the modern events, such as the Six Days, the Quarterlies, the London-Edinburgh, etc. It is safe to say that no modern event has done so much for motoring generally as the Thousand Miles, or been more enjoyed by participants. W.G.

The nett imports of foreign motor cycles during the first three months of 1910 showed an increase of 87%. The exports of British-made motor cycles showed an increase of 66%.

A Nasty Smash.

The following incident contains a moral which some of our readers should take to heart. A motor cyclist was racing a car, and he had a passenger seated on the rear carrier. He was nicely ahead of the car, when his back tyre burst. Such a mishap would be of small importance if the machine had but one man on board, but under the circumstances it skidded right across the road, and threw both men off. To avoid the men the car had to be steered clean across the recumbent machine and on to the grass at the roadside, narrowly escaping an overturn in the process. High speeds with the weight of an additional passenger on the machine are suicidal, and any rider who utilises this method of giving a friend a trip should keep the pace down to rational limits, especially when he has not got the road to himself.

Springing.

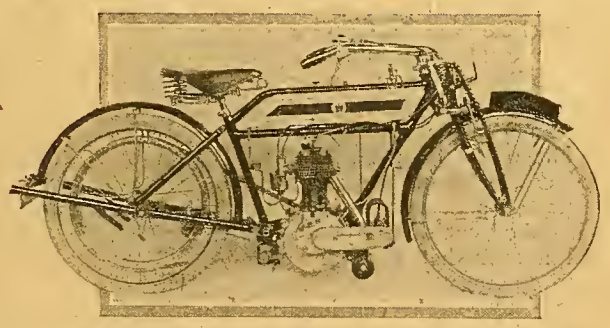
I recently enjoyed several rides on machines with special fittings for reducing vibration, and a subsequent return to the standard type with no rear springing of any sort and only a very moderate spring fork in front has made me extremely discontented. I fear some firms do not realise what extreme comfort can be provided on a motor cycle. Within a year or two a few thousand riders will have enjoyed personal trials of a few good springing devices on the road, and unless those firms who have not up to now studied the question do not begin to cater for the consequent demand they will suffer. I personally do not intend to purchase another machine which is not sprung in some manner both fore and aft, and many hundreds of riders will take similar vows in the next two years. Standard motor bicycles are a great deal more comfortable than the ontside public ever imagine, but they are very, very far from perfection in this respect.

The Scottish Trials.

I have just amused myself by traversing the route of the Scottish Trials with Inglis's contour book and in the comfort of my study, and I see that the hardy sportsmen of the North have a distinct penchant for hills. There is scarcely a practicable precipice north of the border which has been omitted from the trials, and any English riders who fancy they can round corners at speed and that their engines can keep on plugging up miles of stiff gradient will learn something if they enter for these trials. Given a good hill-climber for one's mount, I can imagine no jollier holiday than making the round with the keen spirits of the Edinburgh M.C.C., whether as an assistant official or as a competitor. I understand the officials desire some help along the route in the way of checkers, marshals, and observers, and any southrons who would like a truly sporting jaunt should offer their services to Mr. Macmillan. No previous motor cycle event has ever traversed such a wealth of gorgeous scenery. All the finest lochs in Scotland will be visited, and the minor officials will have ample leisure to look about them, though the competitors will be concerned with more strenuous things. The trial bids fair to be the most severe in history. Tyres should be particularly large and stout for this job.

The Motor Bicycle and Automatic Carburation.

I see Howard Smith [letter 4692] rather disagrees with my view that many motor cyclists desire an automatic machine which makes the minimum demand upon their intelligence and attention. That is admittedly a matter of opinion, although the existence of a few thousand riders who regard "tuning" as a bother would justify the listing of automatic carburetters as an "option." But I must take the strongest exceptions to the ground on which he bases his difference of opinion. Time was when the designer of a car planned his vehicle to be worked at a constant engine speed, leaving variations in the work to be met by a change of gear, just as Mr. Smith asserts; but those days are over for the present, though they may return when the infinitely variable gear comes along. At the present time the engines



A new Rex Speed King, model No. 2. It is finished black, and has 2¼in. non-skidding tyres and spring forks.

of the most up-to-date cars are as flexible as a good motor bicycle engine. F. Hulbert once drove a Triumph motor bicycle at speeds ranging from five to fifty miles per hour in a non-stop trial; there are now many cars which can surpass this performance. It may interest Howard Smith to know that last week I drove a 12 h.p. two-cylinder car at speeds ranging from ten to forty-five miles per hour on its top gear, and that this feature is considered the car's best "talking point" by its makers. What will interest him most of all in the performance is that it was achieved with an *automatic* carburetter, and so far the car in question has failed to equal the performance on any hand-controlled carburetter. Moreover, the carburetter in question is devoid of any springs or other devices capable of derangement and demanding periodic adjustment.

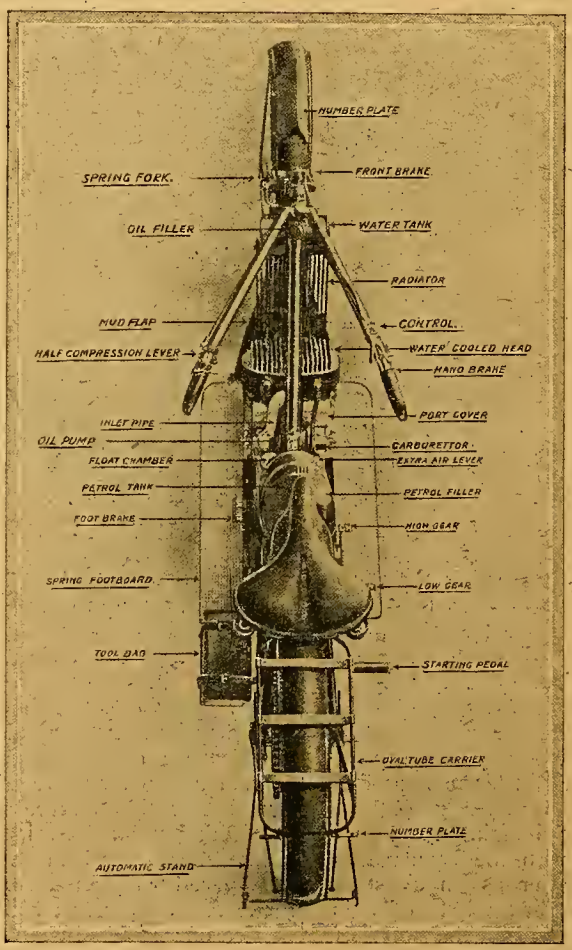
AN EXTENDED TRIAL OF A SCOTT.

EVER since the two-stroke Scott motor bicycle carried all before it in the Coventry Motor Club's hill-climb of 1908 we have longed for a lengthy trial of this fascinating machine. Short runs mean nothing really, and are not reliable guides, for it is within the bounds of possibility that a good motor cycle may develop a fit of the sulks and give one a bad impression, whereas a really doubtful quantity may run at the top of its form for a short period, and thus give a false impression of its general qualities. The true test is an extended trial under normal conditions day in and day out, and it is of this the average rider is most anxious to hear. The Scott was probably the most talked of motor bicycle at the last Stanley Show, and it was partly to allay criticism and doubt concerning its strikingly original design that Mr. Eric S. Myers accorded us the opportunity of an extended trial, and we are now in a position to dilate upon its good qualities. It was rather a tall order to endeavour to embody all motor cyclists' ideals in one machine, yet that was the ambition of Mr. Alfred A. Scott when he designed his two-stroke, two-cylinder, two-speed motor bicycle.

A Fast-running Engine.

It so happened that on the occasion of our first trial of this machine the roads were thick in mud, and although the stability of the machine left nothing to be desired, we must candidly confess we were not altogether happy. The speed of the engine surprised us—3,000 r.p.m. was nothing to it—and consequently we found it somewhat more difficult to control at slow speeds than a four-stroke engined mount. This, however, was almost entirely due to our inexperience with the Scott, for, since we have become accustomed to the manipulation of the half-compression lever (on the left handle-bar), the spark and throttle levers (right handle-bar), and the change-speed pedal on the right footboard, we have developed a great liking for the machine, and are quite at home with it in thick traffic or on winding roads.

As regards its running, it may be compared to four-cylinder machines, the two-cylinder two-stroke engine being equivalent in torque to the four-cylinder four-stroke type. This is saying a great deal, for everyone knows there is only a negligible amount of vibration with four-cylinder engines. This even impulse of the two-stroke Scott motor accounts in a great measure for the longevity of the tyres and the success of the chain transmission. Never have we experienced such comfort from a positive method of transmission, and, what is more, the Renold chains have never given a moment's trouble, and have only required shortening once in 700 miles. In fact, the machine as a whole has proved wonderfully reliable, our one and only *contretemps* being the result of misfortune more than anything else. It was in connection with the carburetter. The high-speed driving chain is immediately under the float chamber, and the chain having developed a certain amount of slackness, gradually chafed a tiny hole in the carburetter casting, and caused a leakage before the trouble was found out and rectified by adjusting the chains.



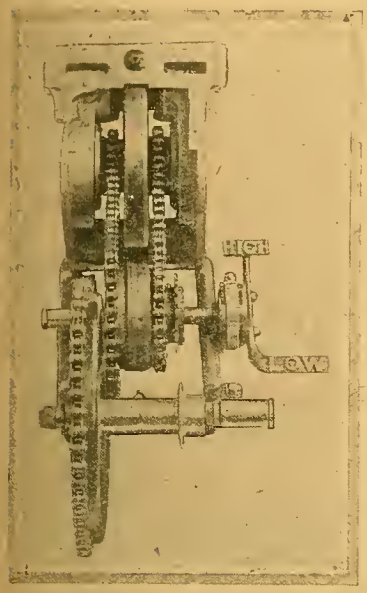
Plan view of the Scott. The lettered description shows the disposition of the various parts.

The Foot-starting Device.

The original method of starting the Scott engine is a great success. One has merely to inject a small quantity of petrol into the transfer ports, flood the carburetter, and with a smart rearward dig of the foot whilst seated in the saddle, the engine is humming merrily. The acceleration powers of the engine are truly wonderful considering its size—2⅝in. bore by 2½in. stroke. It takes up the drive from a standstill without the slightest hesitancy, and the high gear can be engaged after thirty or forty yards. Knocking is unknown with this engine, and, what is more, the unique system of constant thrust is obtained under all normal conditions, so that slackness in any of the bearings has no effect in causing clanking or noise. We have nothing but praise for the two-speed gear. It has received no attention whatever at our hands, but its utility is undoubted. All parts are made from mild steel pressings and stampings, and every wearing part is case-hardened and ground to limit gauge to obviate wear. As may be seen by the illustration of the gear, a system of central drive is adopted. On either side of the flywheel is mounted a sprocket, driving on to a counter-shaft in which the change-speed gear is incorporated. The gear consists of two metal-to-metal expanding ring clutches, and by the

An Extended Trial of a Scott.—

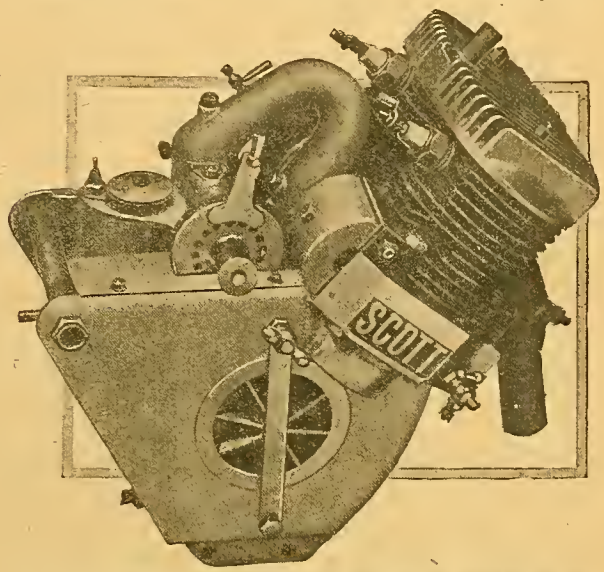
rocking motion of the gear pedal either gear may be engaged, the horizontal position giving a free engine. The final drive to the rear wheel is by a single chain.



The system of central drive. The simplicity of the counter-shaft gear may be gathered from the above.

The low gear enabled a clean ascent of Warmington, on the Edge Hills, with the roads exceptionally heavy, and there was plenty of power in hand. Hills such as Bunny, near Nottingham, it takes in its stride. The writer had made a non-stop run from Newark (twenty-five miles) well up to legal limit, but if the designer had seen the way the Scott roared over Bunny when the throttle was opened it would have done his heart good. For speed on the level, the Scott can easily hold its own with the best 3½ h.p. machines of orthodox type. There are many special features embodied in the design, some of which we may refer to briefly. The open frame, for instance, is very convenient, and enables the rider to wear a long thick motor coat enveloping the knees and legs. In the colder months we found this an untold blessing. The spring footboards are also good, and entirely do away with that stiffness one notices after riding a long distance with the legs in one position. The water-cooling apparatus has been well thought out, the spring forks are very effective—albeit they develop a certain amount of rattle when the rollers are worn—and the crank case inspection covers are useful to enable one to ascertain the amount of oil in the base and the condition of the big-end bearings.

The Bosch magneto is located above the counter-shaft gear, and driven by means of a chain. Some time ago a contributor to these columns pointed out that this indirect drive of the magneto may cause trouble by a variation of the timing owing to chain stretch. We find that the very slight variation which can take place from this cause is easily rectified by the position of the ignition lever on the handle-bar. By the way, the



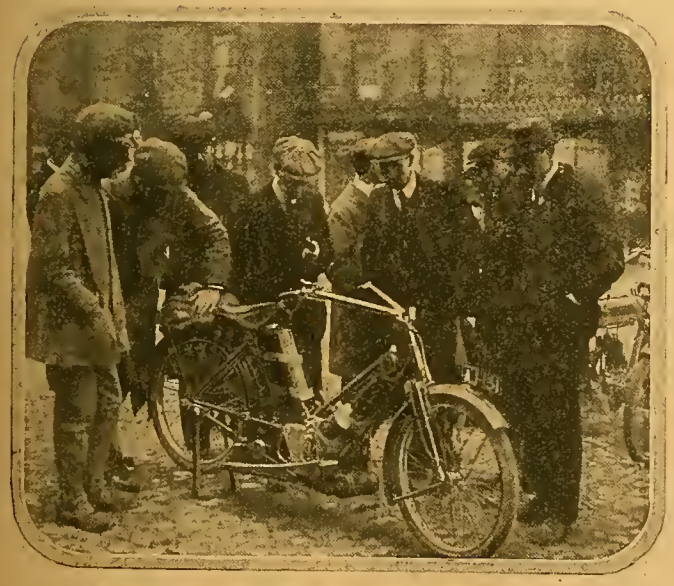
The twin-cylinder two-stroke Scott engine with water-cooled heads, showing carburetter and auxiliary air inlet, transfer port covers, and crankcase inspection covers. This unit forms the nucleus of the frame.

Scott engine has the ignition set much further advanced than the usual four-stroke engine, for the spark should take place (with ignition retarded) exactly at the top of the stroke.

One or two readers have at times queried us as to what would happen in case of a backfire into the crank case with a two-stroke engine. Speaking from experience with the Scott, we have noticed that the crank case covers tremor visibly—that is all. Backfiring is due to burnt-out gauzes in the transfer ports.

From our experience the following minor points might receive attention: The oil pump is somewhat inaccessible, as also the auxiliary air lever. It may, however, be mentioned in connection with the latter that, once set, it is right for the remainder of the run, unless exceptionally steep gradients are encountered. The spring stand fastener is hardly secure enough. We should also like the change-speed and brake pedals placed further forward.

To sum up, there are very few points open to criticism on the Scott motor bicycle; the engine certainly cannot be coaxed to run as slowly as the four-stroke type, and the petrol consumption is much higher—about fifty miles to the gallon—but against these disadvantages one has the simplicity of the two-stroke motor writ large on the memory, and a machine that can run as smoothly and do what the Scott can without valve gear, cams, and poppet valves is a competitor to be reckoned with.



At club meetings and competitions the two-speed Scott is invariably the centre of attraction by reason of its novel design.

B.M.C.R.C. SECOND MEMBERS' MEETING.

THE Second Members' Meeting of the British Motor Cycle Racing Club took place on Wednesday, 13th inst., in typical April weather. The day was mild, but throughout the afternoon several sharp showers fell, while a gusty wind blew from the south-east. In consequence of the wet the record time trials did not take place till after 3 p.m.

The B.M.C.R.C. must be congratulated on its programme, which gave not only the fullest particulars of each event, but a distance table, a speed table, and a list of previous best performances in Classes A, B, C, D, and E. There was a good entry, and a fair sprinkling of spectators, but not nearly enough of the latter, considering the interest and the excellent sport these meetings afford. There were many attractive machines on the track, which we refer to elsewhere, but the three Matchless motor bicycles which will actually compete in the Tourist Trophy Race attracted considerable attention.

The Record Time Trials, the first of the 1910 series, were started from the fork and run towards the aeroplane sheds, so that the men accomplished the trials with the wind in their favour. The times were taken over the kilometre and mile with flying starts.

According to the programme, a certificate will be issued for the best performance made in each class, and the club's gold medal will be awarded in each class for the best aggregate performance made during the 1910 season. In order to be eligible for the latter award, members must have ridden in all but two of the series of time trials held during the season.

In Class A, the best previous performance to Chitty's was by Fletcher on a Moto-Rêve, who covered the mile in 1m. 19.213s., speed 45.447 m.p.h., July 14th, 1909.

In Class B, Martin beat Dayrell, whose time for the mile was 1m. 16.038s., speed 47.345 m.p.h., August 18th, 1909.

In Class D, the best previous performance to Bowen's was by Lee-Evans, who covered the mile in 55.640s., speed 64.702 m.p.h.

The following are the results:

CLASS A.—Engines not exceeding 275 c.c.

	Bore and stroke.	c.c.	secs.	m.p.h.
W. Chitty (Givaudan)	70 × 70	270	71.23	*50.5

CLASS B.—Engines not exceeding 350 c.c.

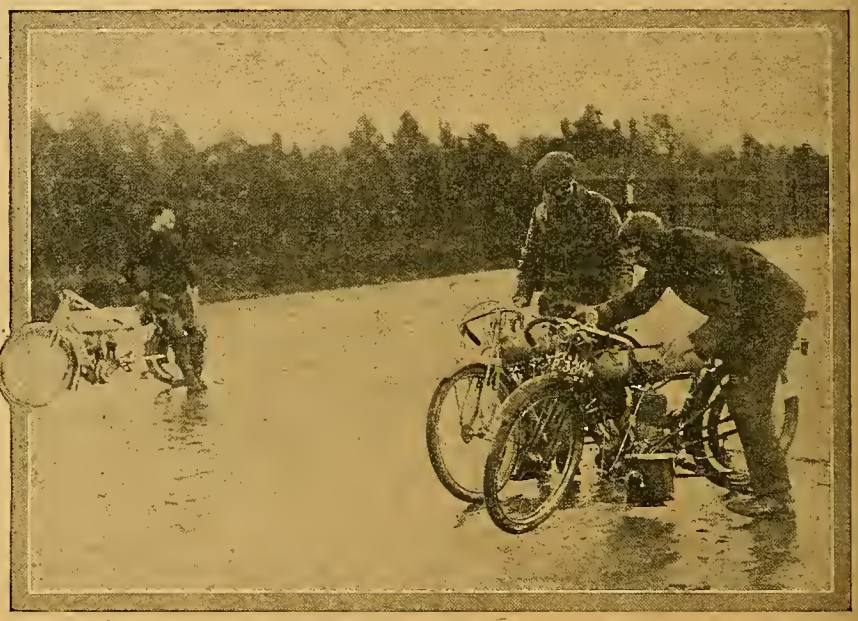
H. Martin (Martin)	85 × 60	340	61.46	*58.5
W. Chitty (Martin)	85 × 60	340	66.78	53.8
G. L. Fletcher (Douglas)	60 × 60	340	92.06	38.8

CLASS C.—Engines not exceeding 500 c.c.

	Bore and stroke.	c.c.	secs.	m.p.h.
S. A. M. Witham (Triumph)	85 × 88	499	59.32	60.7
F. A. McNab (Trump-J.A.P.)	85 × 85	482	60.79	59.2
A. G. Fenn (Triumph)	85 × 88	499	65.01	55.3
R. C. Griesbach (Triumph)	84 × 86	476	67.30	53.5
A. C. Maitland (Trump-J.A.P.)	85 × 85	482	69.46	51.8
F. A. Applebee (Rex)	83 × 89	482	68.37	50.7
J. T. Bashall (Triumph)	85 × 88	499	76.41	47.1

CLASS D.—Engines not exceeding 750 c.c.

H. H. Bowen (Bat-J.A.P.)	85 × 58	658	52.76	*68.20
G. Lee Evans (Indian)	70 × 80	616	55.27	65.1
W. O. Bentley (Indian)	70 × 83	639	56.60	63.60
D. R. Clarke (Indian)	70 × 83	639	65.63	54.8
C. E. Bennett (Indian)	70 × 83	639	83.47	43.10



A. G. Fenn (3½ h.p. Triumph) and H. A. Collier (6 h.p. Matchless) winners of the Relay Race. Fenn is receiving the bracelet for the last lap.

CLASS E.—Engines not exceeding 1,000 c.c.

	Bore and stroke.	c.c.	secs.	m.p.h.
G. Lee Evans (Indian)	82.5 × 93	994	50.57	71.1

*World's record.

The Relay Race.

The next event to be run off was the Relay Race—a highly sporting and most interesting affair which greatly pleased the onlookers. The following competitors took part: McNab and Bowen, Maitland and C. R. Collier, Griesbach and Colver, Fenn and H. A. Collier, and Applebee and Geiger. The latter rode a V.S., the others the same machines as in the previous event.

The men entered in pairs, of which one rode a single-cylinder and the other a twin, the combined capacity of which did not exceed 1,170 c.c. Either one of the pair, whoever decided, started and wore a "bracelet"—in reality a large elastic band—which he handed to his partner at the end of each lap. The race consisted of four laps in all, each partner riding

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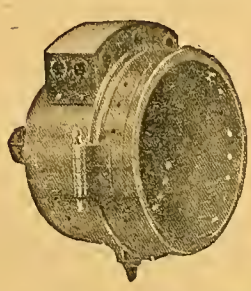

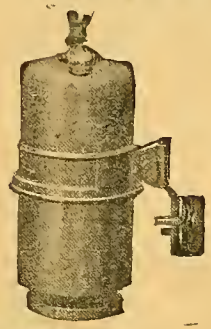

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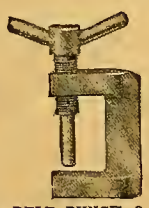
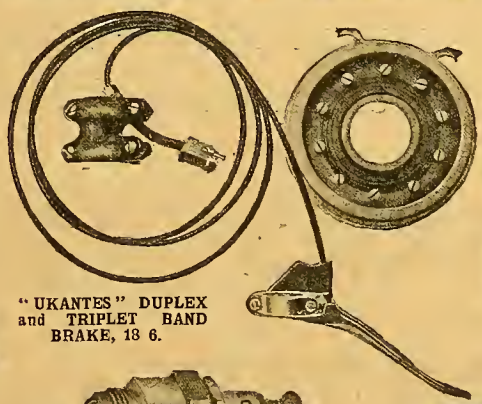
BELT REMOVER and TYRE LEVER, 1/-

"UKANTES" MOTOR CYCLE STAND. 9/6 per pair.



BELT PUNCH, 2/-



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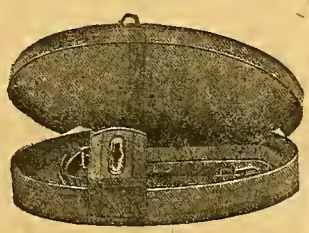

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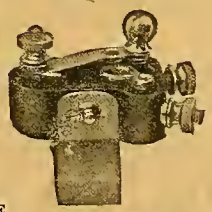

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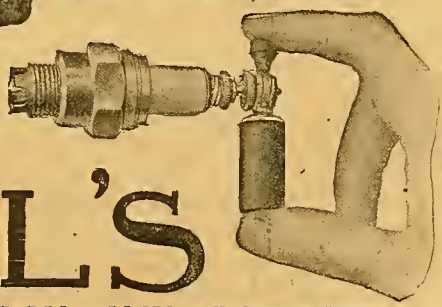

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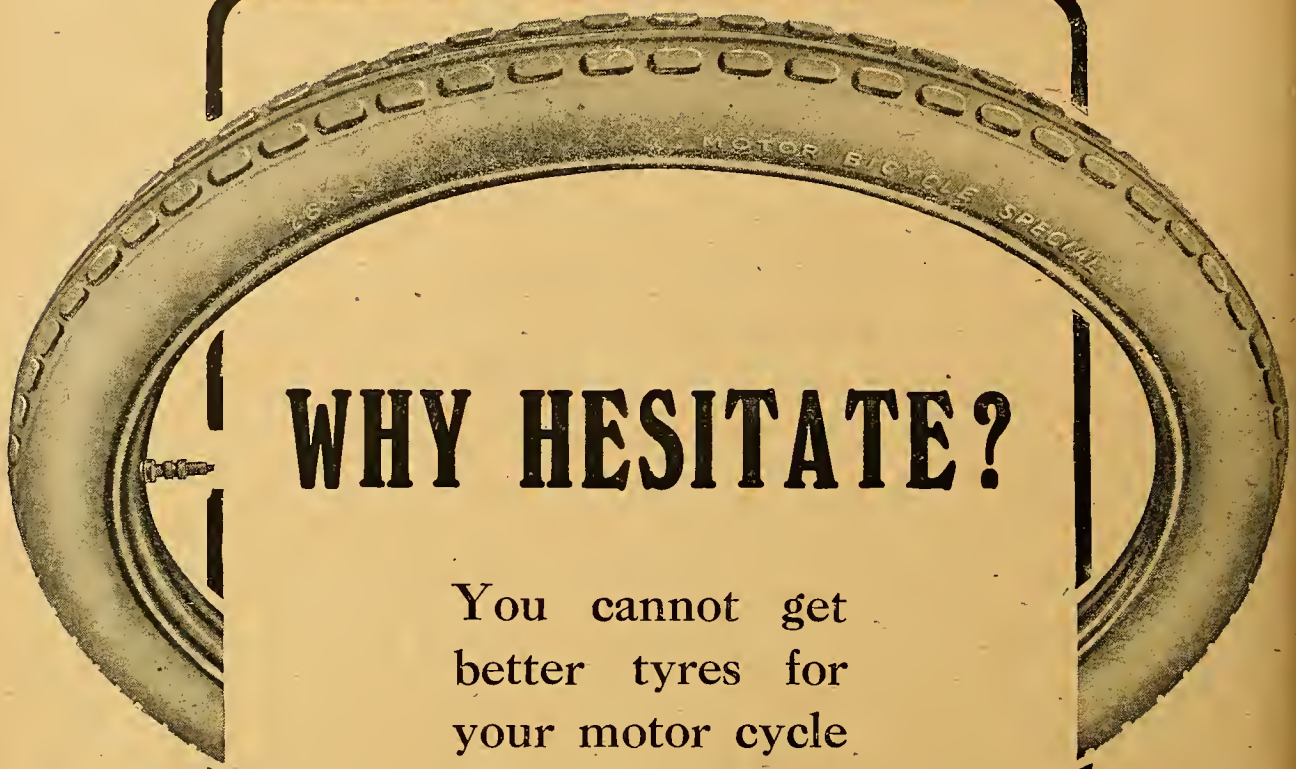

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A20

B.M.C.R.C. Second Members' Meeting.—

two alternate laps. First prize, two gold medals; second prize, two silver medals. The start, the three changes, and finish all took place at the fork, and most exciting it was.

The Start.

At the word "go" Maitland broke his belt, and C. R. Collier made a poor start. At the end of the first lap H. A. Collier romped in first, stopped neatly,

During the progress of the Hour Race, H. H. Bowen stopped for petrol. Many were the willing hands who rushed to help him.

and quickly handed the bracelet to Fenn, who slipped it on and started, while the others managed fairly well. At the second lap Fenn stopped neatly and lost his partner no time, but Geiger and Bowen overshot the mark, while Griesbach was somewhat late. At the third lap Collier and Fenn again hit it off neatly, and so did McNab, but Applebee flew past the line. Result: 1, H. A. Collier and Fenn; 2, McNab and Bowen; 3, Applebee and Geiger. It had been raining just previous to the race, and as the spray from the numerous puddles flew up from the wheels, belts slipped badly, and the engines raced as if they were in free engine.

Up to the end of the second event the weather had been fairly fine, but during the Hour Tourist Trophy Race for machines complying with the 1910 T.T. regulations (except purely touring accessories such as mudguards and toolbags, which might be removed), there were several heavy showers, and the spray flew from the front wheels of the machines like the bow wave of a motor boat, soaking belts and magnetos in the most disastrous manner. For this race the first prize was a silver cup presented by Mr. H. A. Collier, the second prize the club's gold medal, the third prize the club's silver medal, and certificates to all who finished. The following competitors started:

	Bore and stroke.	c.c.
F. A. McNab (Trump-J.A.P.)	85 × 85	482
H. H. Bowen (Bat)	85 × 58	658
A. C. Maitland (Trump-J.A.P.)	85 × 85	482
C. R. Collier (Matchless-J.A.P.)	85 × 58	658
H. V. Colver (Matchless-J.A.P.)	85 × 58	658
Bert Yates (Humber)	85 × 88	499
W. O. Bentley (Indian)	70 × 83	639
G. Lee Evans (Indian)	70 × 83	639
J. Gibson (Indian)	70 × 83	639
D. R. Clarke (Indian)	70 × 83	639
H. A. Collier (Matchless-J.A.P.	85 × 58	658
A. G. Fenn (Triumph)	85 × 88	499
J. T. Bashall (M.A.B.)	85 × 60	340
S. A. M. Witham (Triumph)	85 × 88	499

At the word "go" almost all made a fine start except Bashall, who stopped within two hundred yards, and at the end of the first lap the men passed in the following order: Bowen, Bennett, and C. R. Collier in close order, Clarke, H. A. Collier, Lee Evans, Geiger, Bentley, Colver, Fenn, Yates, McNab, Gibson, and Witham. In the second lap Bowen kept the lead, C. R. Collier took second place, and Bennett third. In the third lap Bennett took second place, which he kept till the eighth lap, when he caught up Bowen. H. A. Collier had then assumed the third place. At the tenth lap Bowen stopped for petrol, and left the lead to Bennett till the thirteenth round, when he overtook Bennett, whose machine was not then running well. The brothers Collier crept into second and third positions, but, amid the hearty cheers of the spectators, Bowen maintained his lead to the end. Result:

1.	H. H. Bowen (Bat-J.A.P.)	56 miles	1038 yards	
2.	C. R. Collier (Matchless-J.A.P.)	53 ,,	326 ,,	
3.	H. A. Collier (Matchless-J.A.P.)	51 ,,	740 ,,	
4.	C. E. Bennett (Indian)	50 ,,	1035 ,,	
5.	M. Geiger (V.S.)	46 ,,	937 ,,	
6.	Bert Yates (Humber)	42 ,,	1113 ,,	

Lining up for the start of the Hour Tourist Trophy Race. There were nineteen entrants, British machines finishing first, second, and third.

B.M.C.R.C. Second Members' Meeting.—

There were many retirements through wet on the belts and magnetos, and Evans had trouble early in the race through losing his filler cap. It is interesting to note that the three winning machines were fitted with J.A.P. engines, and the Humber was the only single-cylinder machine to finish. Bowen used a Watawata belt, which seemed little affected by the wet. Those who officiated were: Judge, Major F. Lindsay Lloyd; starter, A. B. Ebblewhite; marshals, A. G. Reynolds and W. H. Wells; clerk of the lap scoring board, A. G. Reynolds.

Mechanical Details of the Racing Machines.

Auxiliary exhaust ports were very popular. On Bashall's M.A.B. the port was protected by a drilled box fastened by a clamp round the cylinder. Martin had two circular drilled boxes each side of his exhaust port proper and an extra exhaust port at the bottom of the stroke, protected by a drilled sheet metal sleeve. Chitty's Givaudan was fitted with a Model B Longuemare carburetter, auxiliary exhaust ports, and two old pattern push pump lubricators were fitted, one to introduce oil into the crank case and the other to the piston. Fletcher was riding a 1908 Douglas, which had run in countless competitions. As regards the Matchless racers, these were referred to in the last issue, but it is interesting to note that they are fitted with a foot-controlled belt rim brake, situated on the off side of the machine, close in against the frame. All the corners in the Isle of Man are on the near side, so that in the case of a spill the brake would not be damaged. H. A. Collier was riding with a belt guard in front of his engine pulley, a device sorely needed on the 13th, owing to the amount of wet on the track. An interesting point about the Matchless tanks was the size of the fillers. All were of a sufficient size to enable petrol to be poured in quickly. Fenn was riding what he called an "Imperial Triumph," which was rendered somewhat unrecognisable from the usual run of Triumph machines by a torpedo tank, a weird pattern Longuemare carburetter, and a cardboard belt guard.

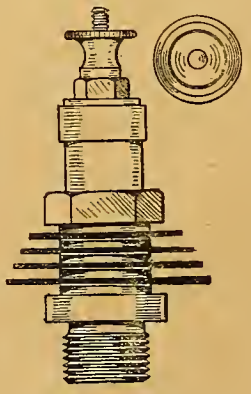
The success of the Bat machines was quite remarkable, and Wednesday, the 13th April, 1910, will be handed down to posterity as a day of victory for the J.A.P. engine.

H. H. Bowen and his victorious twin Bat-J.A.P. He scored a very popular win in two events. Bowen's appearance is accounted for by the wet state of the track, and the mud and dirt thrown up by the front wheel.

It is interesting to note that Martin on his record ride used A.S.L. air spring forks, which, we believe, was the first time these were used in an important racing event.

A NOVEL SPARKING PLUG.

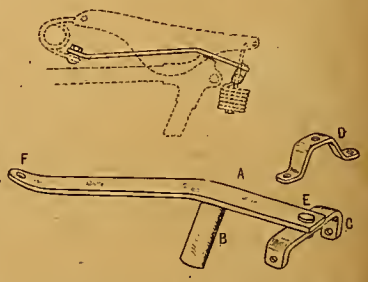
The J.B. sparking plug, primarily introduced for aeroplane engines, is a distinct novelty, and will doubtless be largely used for air-cooled motor cycle engines, particularly those with high compression which are prone to overheating, as this trouble after a time results in the failure of the plug. With a view to keeping the body of the sparking plug as cool as possible, it is made with thin radiators on the lines of an air-cooled cylinder. The new J.B. plug should solve the difficulty with the insulation breaking down, as the cooling flanges should keep it at a much lower temperature. We shall report on its behaviour in a motor cycle engine in due course. The agents for this original plug are G. H. Smith and W. H. Dorey, Ltd., 14a, Great Marlborough Street, W



A DEVICE FOR OBTAINING A LOWER SEAT.

The accompanying sketch shows a seat-pillar fitted by a reader to two different motor cycles, in order to lower the seating position as much as possible without moving the saddle backward. Both machines had the ordinary forward 7 seat-pillar and Brooks saddles. The resultant gain is about an inch and a quarter.

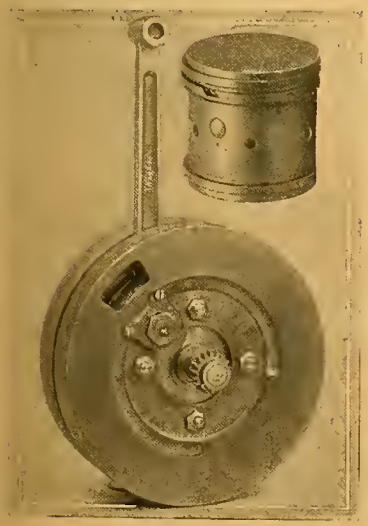
A is an iron bar $\frac{3}{16}$in. by 1$\frac{1}{4}$in., tapered towards F. B is a solid piece of round steel welded to A and fits the seat-pillar tube. C or D (according to the design of the saddle springs) is bolted to A by a $\frac{3}{8}$in. bolt E, and supports the rear saddle springs which are bolted to it. The front spring is bolted at F. Small adjustments to get the right clearance between the seat and the frame can be made by fitting C above or below A and inserting washers between them.



THE CENTAUR REDIVIVUS.

MANY of our readers, we opine, have pleasant recollections of the chain-driven Centaur motor bicycle, for six years ago it was one of the most substantially built machines on the market, and to this day a large number are running on the roads. Since the manufacture of chain-driven Centaur motor cycles was relinquished there has been greatly increased activity in motor cycling circles, and recently the Centaur Cycle Co., Ltd., resolved to place two new patterns on the market—a standard and a T.T. model. The very latest practice has been embodied in the design of these machines, and they are thoroughly well constructed. Thanks to the courtesy of Mr. W. G. Jenks, we have inspected the two latest models, and are enabled to give our readers a few advance particulars and illustrate one or two of the more important features. Dealing first with the standard tourist, in general appearance it is on orthodox lines, with the engine carried vertically low down in the frame. Spring forks with the springs enclosed in hollow tubes are used, and other usual details, such as pedalling gear, footrests, stand, and carrier, are included. The control of the B. and B. carburetter is on the right-hand grip. As regards the engine, which is rated at 3½ h.p., the bore and stroke are 85 by 87 mm. The mechanically operated valves are situated in front of the engine, where they receive the maximum cooling draught. The main shaft is carried in ball bearings, and the pulley is adjustable. The piston (which we illustrate) has three diagonally slotted rings, two being placed above the gudgeon pin and one at the bottom as a guide for the piston. Holes are drilled at equal distances around the circumference to assist lubrication. The flywheels are large and heavy on the periphery, ensuring steady running. On the standard model the chain-driven Bosch magneto is carried in front of the engine between a couple of tubes extending from the steering head to the front of the crank case, and protected by a leather cover.

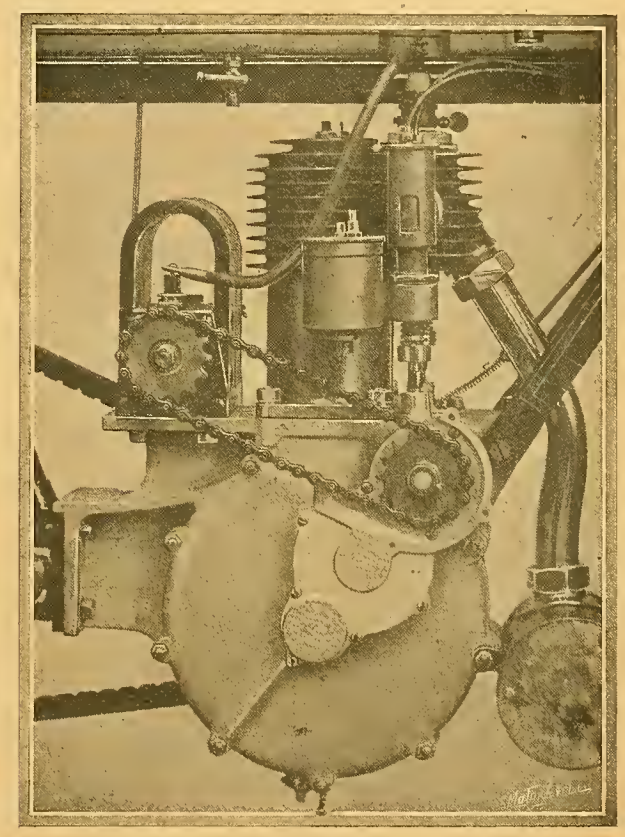
The spring fork of the new Centaur.



The piston, connecting rod, and heavy flywheels. The piston, which has three rings, is drilled to assist lubrication.

No. 2 model is a Tourist Trophy type, and, besides having rigid forks and one set of footrests in place of the pedalling gear, the magneto is located abaft the cylinder, and carried on a platform cast integral with the aluminium crank case. The carburetter is in this case on the right-hand side of the cylinder. One of these models is being entered for next month's Tourist Trophy Race, and very probably that veteran expert F. W. Chase will ride it.

In the case of either model the brakes are the usual belt rim foot applied and front rim hand applied. The transmission is by ⅞in. V rubber belt. The oil and petrol compartments are capacious. A petrol gauge is fitted, and the oil pump is enclosed in the fore part of the tank. Palmer tyres and Middlemore Rideasy saddles complete the equipment of a thoroughly sound machine, which is almost bound to spring into popular favour before very long, as the workmanship and finish are of the highest order.



The power unit of the Centaur T.T. model, showing disposition of magneto and carburetter. By removing the crankcase bolts, and undoing the petrol and oil unions, the engine, carburetter, and magneto may be removed bodily from the frame without disturbing any other adjustments

It is expected that deliveries will be commenced in about ten days' time, and meanwhile applications to the Centaur Cycle Co., Ltd., Coventry, for catalogues will be filed and receive attention immediately the lists are out of the printers' hands.

Cost of Competing in the London Edinburgh Run

BY THE M.C.C. TRIALS HON. SEC.

PREVIOUS to last year's London-Edinburgh run, and again this year, when interest in this popular event is aroused by the preliminary announcements and descriptions in the press, a number of potential participants have written me asking if I can tell them the approximate expense entailed in becoming a member of the Motor Cycling Club and riding throughout the twenty-four hours' run. A few words, therefore, on the subject may interest readers, and incidentally save me a considerable amount of correspondence at a busy time.

I may as well confess, however, that, although I have ridden in the event three consecutive years, I have never kept a close record of my expenses, for the simple reason that I have always looked upon this run as a Whitsuntide holiday, and when holiday-making one does not usually keep count of every odd shilling spent; and I would here urge that the run is a holiday, so interesting, albeit fascinating, does it become the further one travels towards Edinburgh.

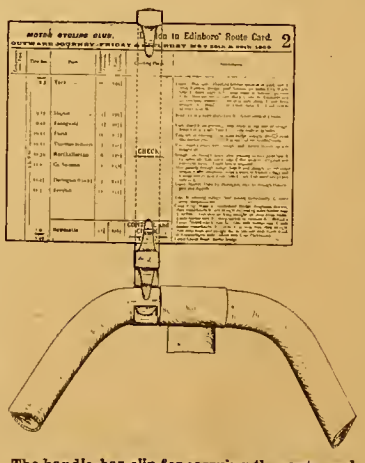
Expense to a Non-member.

Dealing first with a non-member of the club, he must first be elected to membership at a cost of twenty-six shillings—five shillings entrance fee and one guinea subscription. Applications should be directed to Mr. A. Candler, 1, Lime Grove, Shepherd's Bush, W.

Country members will have the expense of getting to the starting point; but as the majority ride up, this is after all an insignificant item; besides, those who live north of London save on the return home—unless, of course, they enter for the double journey. For instance, a member living at Newcastle (the second entry received for this year's event was from a Newcastle member) rides up to London, possibly in one day (I believe I am right in stating that entrants from Newcastle have ridden up the day previous to the start), and rides comfortably home from Edinburgh in another day. Taking an opposite case, the third entry received was from a member at Bristol, but as he is a car owner his pocket is doubtless a deep one. However, a day's run to the scene of the start does entail expense, the least of which is incurred on the run itself for two or three meals and petrol. A day's run means riding to London on the Thursday and staying there, so that there are hotel expenses. In some cases it would doubtless be cheaper to train up to London on the Friday (starting day), the fare for self and machine coming to no more than the expenses of riding up and hotel, etc., after.

I suppose if I ignore equipment expenses I shall be "dropped on"; but whilst I recognise that many new things in the way of inner tubes, cases for carrying same, belts, tyres (if the machine is an old one), lamps, matches, spare parts, etc., are necessary, I would point out that one only buys these things in a lump, so to speak, instead of by dribs and drabs during the year. Regarding lamps, it is no novelty to see some machines at the start fitted with no fewer than three, but I think this number, or even two, quite unnecessary. I have used one good lamp and one good generator on each occasion, and have never had trouble; in fact, my lamp has been burning long after sufficient daylight has appeared to do without it, except last year, when I turned it out at Norman's Cross after refreshment—yes, you can get refreshment at this place.

I, however, started late last year, and did not get so much riding in the dark as some; still, how long does it take to refill a generator or change a refractory burner? If some of those over-ambitious riders who exceeded the fifteen minutes' allowance last year had had lamp troubles they would have experienced a "blessing in disguise." Those who enter for the Challenge Cup may perhaps be excused for carrying a second lamp, since it is imperative that they do not get ahead of schedule time, and do not want to stop for anything.



The handle-bar clip for carrying the route card referred to in the accompanying article.

Expenses Incurred on the Run.

Now we come to the expenses incurred on the run. The first check is at Biggleswade, and here most of us are glad of a cup of hot coffee and a couple of sandwiches—a humble shilling, say, including cigarettes. Next come meals at Grantham, York, and Newcastle. A set of coupons for the single journey cost 8s. Tea at Jedburgh, 1s. Add to this 5s. or 6s. for petrol and 2s. 6d. for lubricating oil, and perhaps an odd shilling for refreshment at Biggleswade (where most riders take refreshment), and we have 18s. 6d. for the journey—say £1, allowing for sundry refreshment *en route*. London to Edinburgh for £1 is not an

Cost of Competing in the London-Edinburgh Run.—exorbitant sum for 400 miles, is it? Now add hotel expenses at Edinburgh. Dinner on the Saturday night, bed, and breakfast Sunday morning—10s. 6d. After this it depends on what one decides to do. The majority, of course, stay at Edinburgh until the Whit-Monday morning, and this involves an expense of about another 15s.; a few make a start home by road, and others return to London by the Sunday night train in order to race at Brooklands, or if they particularly wish to get back for any other reason. The ideal way for those living in London is to tour home in three days, though business has always prevented my doing so. The first year I rode to Penrith on the Monday; rode out and had a look at Lake Ambleside on the Tuesday morning, and caught the 2.35 express to London. The second year I also rode to Penrith on the Monday, and from there to Warrington (over Shap) on the Tuesday, staying at Warrington a few days, and subsequently making a one day's run home to London.

Last year I had to be back in London on the Wednesday, so rode to Carlisle on the Monday, and on to Doncaster the next day, catching a train at the latter place soon after six o'clock. There are many different ways of returning, each having special attractions, and a party of riders can have a real good time. Assuming that my last method is followed, *i.e.*, riding to Doncaster, the expense after leaving Edinburgh, including carriage of machine, would amount to about £2 10s., reckoning first-class hotels and dinner on the train.

Summarising the various items, we get a total expenditure made up as follows: Expenses on the journey, £1; Saturday to Monday hotel, £1 5s. 6d.; journey home, including train fare for rider and machine from Doncaster to London, £2 10s. Total, £4 15s. 6d.

The run then costs, roughly, a "fiver." Non-members will have to add another £1 6s.

If the return to London be made by road in two days—and many do this—an appreciable saving can be made, because 15s. railway fare is saved, also the fare for the machine and dinner on the train. One should be able to save £1 this way.

In conclusion, I will mention a tip in regard to the carrying and treatment of the linen route cards. These should be first coated with ordinary size and afterwards carefully coated with ordinary paper varnish (I believe this is a spirit varnish, since it dries quickly); this will protect it in case of wet. I have my last year's route cards now, and they are as good as new, the directions, schedule time, etc., thereon being quite legible, despite exposure to rain.

Regarding carrying the route cards, I have always used a pair of spring steel clips as used in paper shops, etc., for show purposes. I have improved on these clips, and Messrs. Terry and Sons, of Redditch, have been good enough to make me some of these improved clips, which I shall be pleased to sell to any readers at 1s. each. They clip on the handle-bar, and the sliding clips on the vertical piece serve to hold the route cards secure. I have, of course, seen much more elaborate holders, especially on machines entered for the Motor Cycling Club Challenge Cup, but for the ordinary medal hunter these clips are really good enough. S. G. Frost, I remember, has his route and time-table made out on a strip attached to a roller, these being enclosed in a box with a transparent top, an electric light completing the outfit. No doubt his ingenuity in making this elaborate accessory helped him to win the cup in 1908.

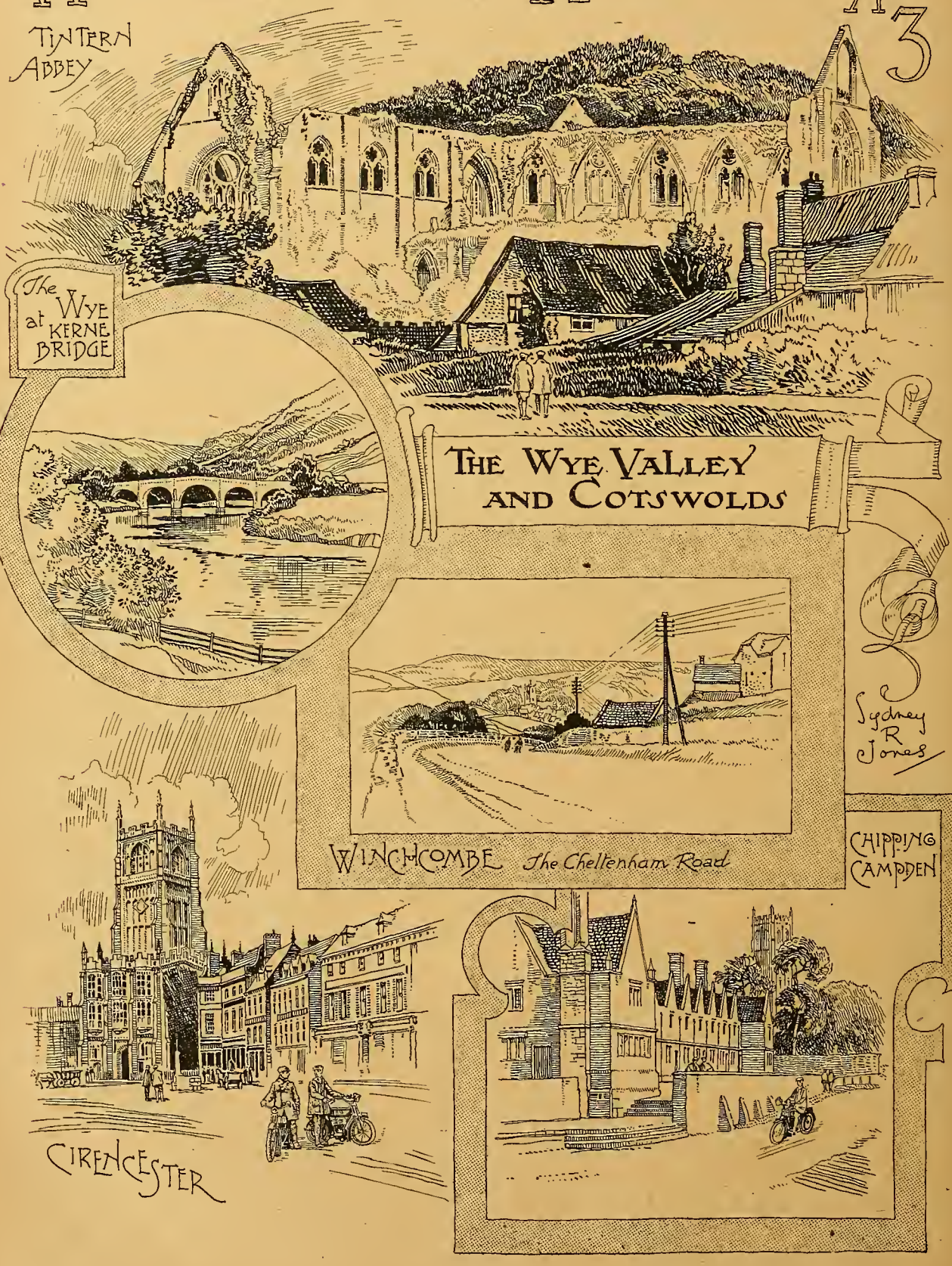
HARRY G. BELL.

Ye Olde Gate House, Highgate, the scene of the start at 10 p.m. on Friday, May 13th.

Speeding along the excellent surface of the Great North Road.

Not a street accident, merely competitors in a M.C.C. long distance trial being checked by a timekeeper.

WHERE TO GO AT WHITSUNTIDE. No. 3



THE SECOND QUARTERLY TRIAL OF 1910.

YESTERDAY (Wednesday) the second Quarterly Trial of 1910 was to take place over the usual course. Below will be found the list of competitors :

BICYCLE AND TRICYCLE CLASS.

Rider and machine.	No. of Cyls.	Bore	Stroke
Miss L. Berend (2 Moto-Rêve)	2	52	70
W. Cooper (3½ Bradbury)	1	87	87
W. Pratt (3½ P. and M.)	1	82	88
E. A. Colliver (2½ P. and M.)	1	66	76
H. Robert (3½ P. and M.)	1	82	88
F. Smith (5-7 Clyno)	2	76	82
E. D. Dickson (7 Indian)	2	82.5	93
E. H. Lees (5 Indian)	2	70	83
B. Allan Hill (3½ Kerry-Abingdon) ...	1	84	86
C. K. Wigram (5 Rex)	2	76	79
J. G. F. Firth (3½ P. and M.)	1	82	85
W. A. Lockwood (3½ P. and M.)	1	82	88
F. Philipp (3½ Scott)	2	66.66	63.5
Reg. Samson (3½ Reg. Samson)	1	85	88
G. L. Fletcher (2¾ Douglas)	2	60	60
P. M. Pridmore (3½ Triumph)	1	84	86
F. H. Stevenson (3½ Triumph)	1	84	86
P. Phillips (2¾ Douglas)	2	60	60
C. J. Fox (7-8 Bat)	2	85	85
G. T. Gray (3 N.S.U.)	1	80	80
C. J. Janssen (2¾ Moto-Rêve)	2	50	85
A. C. Robbins (3½ Humber, two-speed) ...	1	83	90
H. A. Cooper (2¾ h.p. Douglas)	2	60	60
A. V. Deacock (3 h.p. Wanderer)	2	60	70
F. A. James (1½ h.p. Omega)	1	65	65
H. S. James (1½ h.p. Omega)	1	65	65
F. W. Applebee (5 h.p. Rex)	2	77½	80
A. L. Barker (3½ h.p. Clyde)	1	85	85
A. T. Stanton (3½ h.p. Bradbury)	1	87	86
Wm. Keep (4¼ h.p. Midget Bicar) ...	1	80	90
V. Underhill (3½ h.p. L.M.C.)	1	85	88
W. G. Ayling (3½ h.p. Midget Bicar) ...	1	80	80
B. Jones (3¾ h.p. Premier)	2	66	80
F. Savory (3½ h.p. Premier)	1	85	88
G. E. Stanley (3½ h.p. Premier)	1	85	88
J. S. Holroyd (1¾ h.p. Motosacoche) ...	1	62	75
W. Hewitt, jun. (3½ h.p. Excelsior) ...	1	84½	89
H. Lord (3½ h.p. Excelsior)	1	84½	89
J. Slaughter (3½ h.p. Ariel)	1	85	85
H. S. Selves (6-7 h.p. T.A.C.)	4	60	60
S. R. Cooke (2¾ h.p. Douglas)	2	60	60
R. Measures (3½ h.p. Triumph)	1	85	88
R. G. Mundy (3½ h.p. Triumph)	1	85	88
J. V. Robinson (2¾ Douglas)	2	60	60
E. Leighton (3½ Triumph)	1	85	88
C. Cross (3½ L.M.C.)	1	85	88
A. C. Wills (3½ Arno)	1	84	89
C. Pattison (1½ Moto-Rêve)	1	60	86
J. F. Crundall (3½ Humber)...	1	83	90
Bert Yates (3½ Humber)	1	83	90
F. E. Edmonds (3½ Humber)	1	83	90
A. D. Arter (3½ James)	1	86	96
George Allen (3½ James)	1	86	96
J. Marshall (3½ Triumph)	1	85	88
Wm. F. Newsome (3½ Triumph)	1	85	88
G. E. Brough (3½ Brough)	1	84	86
F. J. Ellis (3½ Matchless)	1	80	85
F. A. Applebee (Rex)	2	77½	80
A. L. Lamb (3½ Humber)	1	83	90
D. R. Clarke (3½ James)	1	86	96
A. R. Abbott (8 Matchless)	2	85	85
S. C. Perryman (3½ Ariel)	1	85	85
S. A. M. Witham (3½ Triumph)	1	84	86
— Islip (2½ Enfield)	2	52	70
— Greaves (2½ Enfield)	2	52	70
H. Cox (2¾ Douglas)	2	60	60

PASSENGER CLASS.

H. C. Griffen (3½ Simplex-Premier) ...	1	85	90
Wm. Beninson (5-6 A.C. Sociable)	1	90	102
John Portwine (5-6 A.C.)	1	90	102
G. N. Higgs (5-6 A.C. Sociable)	1	90	102
M. Geiger (7-9 V.S. and sidecar)	2	80	95
F. Hill (5-6 A.C. Sociable)	1	90	102
A. C. Forbes (5-6 A.C.)	1	90	102

MOTOR CYCLE RACES AT BROOKLANDS.

ENTRIES FOR NEXT WEDNESDAY'S MEETING.

THERE will only be racing on Wednesday at the B.A.R.C. meeting, and not on Thursday also, as was anticipated. The first event is the April Motor Cycle Handicap, for which thirty-six entries have been received. The Weybridge Handicap, timed to start at 3 p.m., has attracted twenty-two entries. Below we give the complete lists :

2-0 p.m.—The April Motor Cycle Handicap.

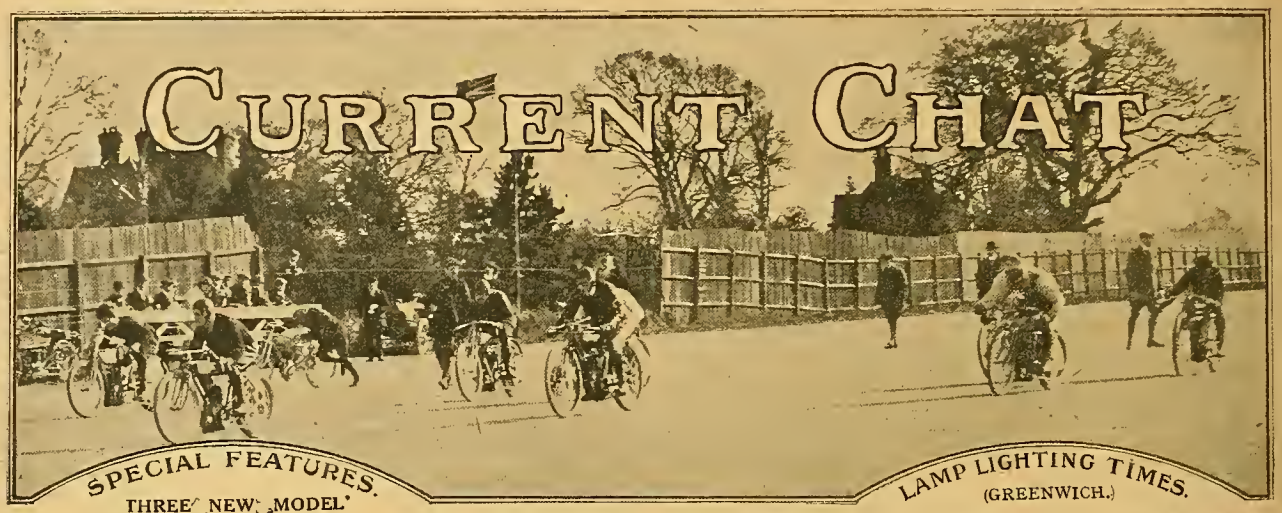
Limit capacity, 670 c.c. Distance, about eight miles.

Rider and machine.	No. of Cyls.	Bore	Stroke
D. R. Clarke (Indian)	2	70	83
A. G. Fenn (Indian)	—	—	—
C. E. Bennett (Indian)	2	70	83
A. G. Fenn (Triumph)	1	85	88
G. Lee Evans (Indian)	2	70	83
H. Shanks, jun. (Kingfisher-J.A.P.) ...	1	85	60
R. E. Dicker (Chater-Lea)	1	79	76
E. S. Myers (two-stroke Scott)	2	2⅞″	3″
W. A. Groombridge (J.A.P.)	1	85	60
A. J. Moorhouse (Indian)	2	70	83
John P. Scott (Rex)	1	84½	89
W. O. Bentley (Indian)	2	70	83
W. Dewar (Triumph)	1	84	86
H. G. Partridge (N.S.U.)	1	85	88
J. F. Crundall (Humber)	1	85	88
Bert Yates (Humber)	1	85	88
A. Oberländer (N.S.U.)	2	52	74
A. C. Maitland (Trump-J.A.P.)	1	85	85
W. Chitty (Martin-J.A.P.)	1	85	60
H. Martin (Martin-J.A.P.)	1	85	60
J. W. Draper (Minerva)	1	67	70
D. F. Steeves (Indian)	2	70	83
F. A. McNab (Trump-J.A.P.)	1	85	85
H. A. Collier (Matchless)	2	85	58
H. V. Colver (Matchless)	2	85	58
C. R. Collier (Matchless)	2	85	58
R. T. Exshaw (N.L.G.)	—	—	—
R. C. Griesbach (Triumph)	1	84	86
R. T. Exshaw (M.A.B.)	—	—	—
A. E. Woodman (Indian)	2	70	83
H. H. Bowen (Bat)	2	85	58
F. W. Barnes (Zenith-Gradua)	1	85	85
J. T. Bashall (M.A.B.)	—	—	—
J. Gibson (Trump-J.A.P.)	1	85	85
J. P. Le Grand (Rex)	2	77½	70
C. Patteson (Moto-Rêve)	2	50	85
G. W. L. Meredith (N.S.U.)	1	80	80

3-0 p.m.—The Weybridge Motor Cycle Handicap.

For engines between 500 and 1,000 c.c. Distance, about eight miles.

D. R. Clarke (Indian)	2	70	83
A. G. Fenn (Indian)	—	—	—
C. E. Bennett (Indian)	2	70	83
F. E. Barker (Brchet)	2	76	73
G. Lee Evans (Indian)	2	70	83
E. S. Myers (Scott)	2	2⅞″	3″
F. W. Dayrell (J.A.P.)	2	85	85
A. J. Moorhouse (Indian)	2	82½	93
E. B. Ware (King's Own)	2	85	85
A. E. Woodman (Indian)	2	70	83
W. O. Bentley (Indian)	2	70	83
H. G. Partridge (N.S.U.)	2	75	90
A. Oberländer (N.S.U.)	2	80	99
W. E. Cook (N.L.G.)	2	80	99
H. E. Parker (N.L.G.)	2	80	94
D. F. Steeves (Indian)	—	—	—
H. A. Collier (Matchless)	2	85	58
H. V. Colver (Matchless)	2	85	85
C. R. Collier (Matchless)	2	85	85
J. Gibson (Indian)	2	70	83
J. P. Le Grand (Rex)	2	77½	70
H. H. Bowen (Bat)	2	85	58



SPECIAL FEATURES.

THREE NEW MODEL

COST OF COMPETING IN THE LONDON-EDINBURGH RUN.

TENTH ANNIVERSARY OF THE THOUSAND MILES TRIAL (Illustrated).

M.C.C. Inter-team Trial.

Mr. J. W. G. Brooker has been appointed judge to represent the A.C.U. at this competition.

Lighting a Dangerous Gate.

The A.C.U. has decided to share with the Sussex Centre of the N.C.U. the cost of placing and maintaining a lamp on a dangerous gate at Jacob's Post, Wiversfield.

A Paper before the A.C.U.

On the 27th April, at 8.30 p.m., Mr. I. B. Hart Davies will read a paper illustrated by lantern slides, before members of the Auto Cycle Union, at 112, Piccadilly, entitled "My Experiences from End to End." All motor cyclists interested will be welcome.

Chains for Power Transmission.

Mr. Alec S. Hill, a member of the Institution of Automobile Engineers, read a paper entitled "Chains for Power Transmission" before members of the I.A.E. on the 13th inst., at Storey's Gate, St. James's Park, S.W.

The paper dealt, as far as motors are concerned, with the transmission of power by chains on motor cars, but a shock-absorbing spring wheel similar to the one which was fitted to Singer chain-driven motor bicycles a few years ago was mentioned. Near the close of the lecture, Mr. Hill, suggested that "there is a future for a chain-driven motor bicycle by using a light form of inverted tooth type of chain in connection with a shock-absorbing or spring wheel, resulting in a more efficient transmission of power than could be obtained by the present method of belt transmission." The lecturer apparently overlooked the fact that there are three well-known makes of chain-driven motor bicycles on the market, and although the belt drive is the more popular form of transmission, the chain drive on the Indian, Phelon and Moore, and Scott motor cycles gives every satisfaction.

With regard to the use of the inverted tooth type of chain, this was used with good results on the Century and Eagle tandem tricycles about seven or eight years ago, and doubtless a light form of silent pitchless chain could be used on motor bicycles with advantage.

Chester Historical Pageant.

At Eaton Drive, Chester, a historical pageant is to be held daily at 2.45 p.m. from Monday, July 18th, to Saturday, July 23rd. There will be 3,000 performers.

Affiliations to the Governing Body.

The Keighley and District A.C.C. and the motor cycle section of the Bath Cycling Club have decided to affiliate to the A.C.U. Application has also been received from the Aspatria College M.C.C. (Cumberland), which will be accepted subject to the club's rules being in order.

James R. Kelly, a well-known leader in northern motor cycle circles. His new mount is a long-stroke 2½ h.p. Moto-Reve, 50×85 mm. Last year Mr. Kelly had a 2 h.p. of the same make and a 7-9 h.p. Minerva, but has now forsaken the latter for a car which he employs chiefly for business purposes, using the Moto-Reve for pleasure.

LAMP LIGHTING TIMES.
(GREENWICH.)

April	21	..	..	8.5 p.m.
,,	23	..	..	8.8 ,,
,,	25	..	..	8.11 ,,
,,	27	..	..	8.14 ,,

Police Traps.

We have received information of a police trap a furlong in extent in Foxley Lane, Purley, on the down grade from Woodmansterne to the Brighton Road. The measured distance is just before the junction formed by Plough Lane and Foxley Lane is reached.

There is a police trap working in Hyde Street, Winchester, a continuation of the main road to Basingstoke.

Tar Spraying Operations.

The Preston - Liverpool - Southport Road is being tar sprayed between Penwortham Bridge and Longton. Half of the road is at present in this condition, and a number of small loose stones are scattered about, but one can easily ride through with a little care.

Checking Road Dangers at Night.

A Stockton contractor was fined 15s. at Middlesbrough Police Court on Friday for not having a light at night to warn passengers that the road in Cumberland Road, Middlesbrough, was being excavated. It was stated the excavation was two feet deep, but defendant said it was only six inches, and he did not think a light was necessary.

The Team Trial on June 18th.

The trials hon. sec. of the M.C.C. Competition advises us that further promises of entries have been received from the undermentioned clubs:

Southern Motor Club.
Harrogate and District M.C.C.
Great Yarmouth and District M.C.C.
Hertfordshire County A.C.C (Motor Cycle Section).
North West London M.C.C.
Essex M.C.

The above, together with the Motor Cycling Club (holders), Coventry and Warwickshire M.C., Bristol Bicycle and Motor Club, Streatham and District M.C., Sutton Coldfield A.C., and Edinburgh M.C.C., brings the total number of teams to twelve.

Racing at Tunbridge Wells.

A permit has been granted to the Tunbridge Wells Whit-Monday Sports Committee to hold the following motor cycle races: Three miles handicap, five miles handicap, and three miles scratch.

A Novel Defence.

A motor cyclist who was recently summoned for exceeding the speed limit put forward the novel defence that the inch-long ash of his cigar was unbroken at the moment at which he was stopped. This circumstantial evidence secured his acquittal.

Pacing Motor Cycles Not in Favour.

The pacing motor cycles recently furnished by the management of the Winter Track in Paris for the respective pacemakers of the various riders engaged have not proved a success. The idea was that all the competitors should be equally served as regards pace, but neither the public, pacemakers, nor riders relished the idea, so the paced events fell flat.

A Grumble.

W. Douglas Hawkes writes: "I, like many others at the last Brooklands meeting, was very much annoyed at not being able to get a programme, because I turned up after the first race. If this sort of thing continues, it is likely to keep many people away, as those who do not know the riders well by sight have no chance of following the races." No doubt the matter will have attention after this.

New Patterns with Old Names.

This issue contains the first illustrated description of two new model motor cycles to be built by the Centaur Cycle Co., Ltd. It is refreshing to us to see so many firms returning to the manufacture of motor cycles. Within the last year or two Humbers, Ltd., recommenced the manufacture of power-propelled bicycles, next followed the Excelsior, Singer, and Bradbury, then the Royal Enfield, and now the Centaur Co.

Entries for the T.T. Race.

The following additional entries have been received for the International T.T. Race on May 26th: The Rex Motor Manufacturing Co., Ltd., one machine, bringing this firm's number up to four; Humber, Ltd., three machines; J. Baxter, Rex; C. E. Murphy, one machine; H. H. Bowen, Bat-J.A.P.; F. Mackay, Rex; W. E. Grange, 3½ h.p. Rex; and F. Geddes, one machine. The total number of entries has now reached fifty; last year's total was fifty-eight. Entries close Saturday week, April 30th.

Reduce Speed in Towns and Villages.

Motor cyclists should be careful as to the speed at which they pass through Water Orton and Coleshill, Warwickshire, particularly on Coleshill Hill. It is said that a plain clothes officer at Stonebridge overheard a party of motor cyclists wagering as to the speed at which they could ascend the hill at Coleshill. The result is that a constable has been stationed at the points named, and registration numbers of passing motors are being noted.

Brooklands Meeting Next Wednesday.

The next Brooklands meeting is on Wednesday, the 27th inst. Originally this was intended by the B.A.R.C. to be a two days' affair, but, owing to the insufficiency of entries (apparently not in the motor cycle classes, judging by the long list), there will only be racing on one day.

FUTURE EVENTS.

April 27—Brooklands A.R.C. Meeting.
" 30—M.C.C. Members' Hill-climb.
May 4—B M.C.R.C. Meeting at Brooklands.
" 4—Herts. County A.C. (motor cycle section) Open Hill-climb.
" 13, 14, and 16 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.
" 26 (Thurs.)—INTERNATIONAL MOTOR CYCLE T.T. RACE
" 27—Open Hill-climb in the Isle of Man.
June 4—Motor Cycling Club second private race meeting & gymkhana at Brooklands.
" 6-11—Scottish Six Days' Open Reliability Trial, organised by Edinburgh M.C.C.
" 18—M.C.C. TEAM TRIAL FOR "THE MOTOR CYCLE" CHALLENGE CUP. Competing Teams: Motor Cycling Club (holders), Coventry and Warwickshire M.C., Bristol B. and M.C., Streatham and District M.C., Sutton Coldfield A.C., Edinburgh M.C.C., Southern M.C., Harrogate and District M.C.C., Great Yarmouth and District M.C.C., Herts. County A.C., Essex M.C., and N.W. London M.C.C.

Sunday Competitions Again.

Owing to the action of a certain motor cycle club in holding a hill-climbing test on Rectory Hill, Amersham, during church service hours, the police are taking an unpleasant active interest in motor cyclists who make trial runs up the hill on the one day of the week set aside as a day of rest. The Amersham police have always taken a most kindly view of the Quarterly Trials, which are carefully carried out by the A.C.U. in a proper and orderly manner. It would be a pity if the inconsiderate action of a few were to bring discredit on this useful and popular competition.

Addresses Wanted.

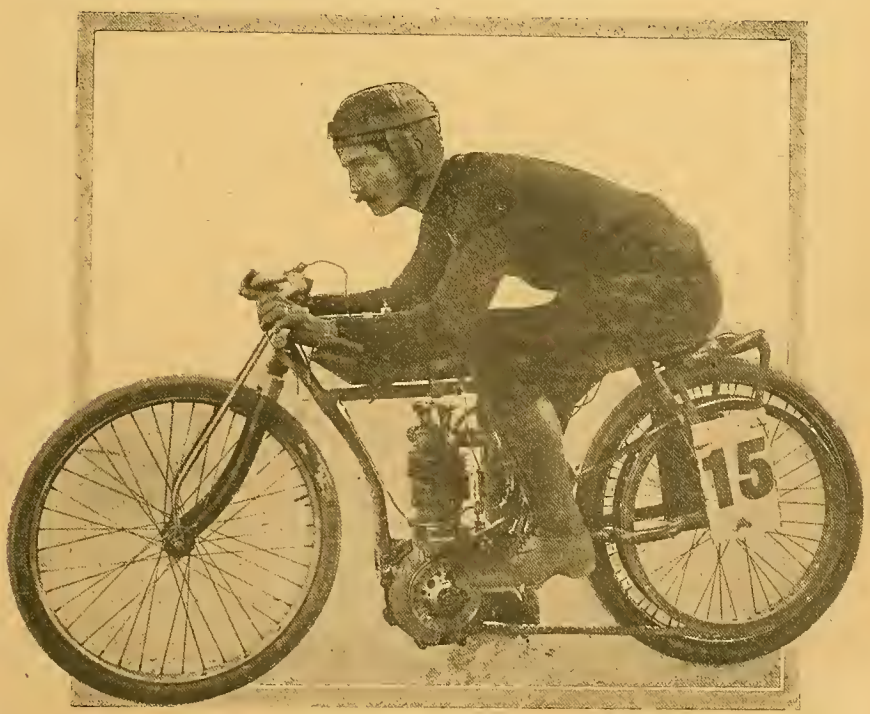
The Wolf Engineering Co., Wolverhampton, have recently received enquiries from E. W. Clegg, R. S. Goodwin, T. P. Smith, and R. McDonald, which they are unable to reply to, as the addresses in each case were omitted.

The B.M.C.R.C. Programme.

Apart from containing a list of the entries for last week's race meeting, the B.M.C.R.C. programme, to which we refer in our report of the event, contains such useful information as a distance table, a speed table giving the lap times in seconds and the equivalent miles an hour, and a table of best previous motor cycle performances on Brooklands track. Copies may be had on sending three penny stamps to the secretary of the B.M.C.R.C., Ashleigh House, Erith, Kent.

The Bournemouth Centenary Fetes

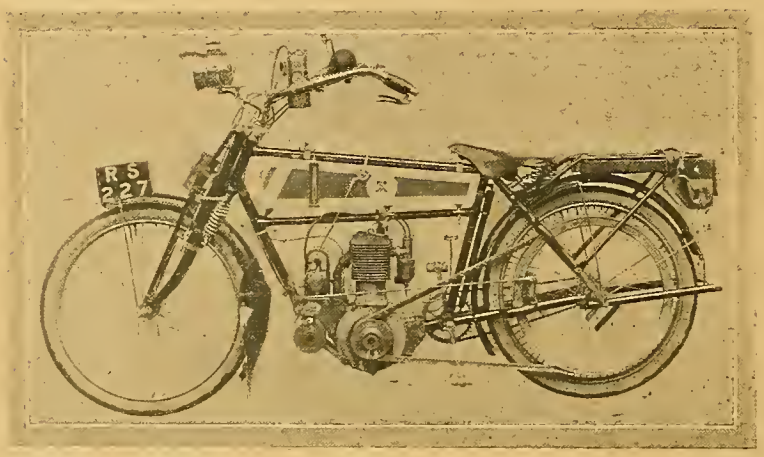
In view of the large number who intend to visit Bournemouth during July next for the aviation meeting and the Centenary fêtes, the Motor Union is making special arrangements on behalf of its members. Hotel accommodation has been secured at the Hotel Metropole, and this will form the Motor Union's headquarters throughout the entire fortnight. A special enclosure has also been reserved for Motor Unionists, with reduced charges for admission to the meeting.



Harry Martin, who established a world's record at Brooklands on Wednesday last week, by covering a mile in 61·46 secs. = 58·5 m.p.h. He used the 85×60 mm. overhead valve J.A.P. engine shown. An A.S.L. air spring fork was fitted in place of the rigid one in the photograph.

NEW MACHINES IN THE QUARTERLY TRIALS.

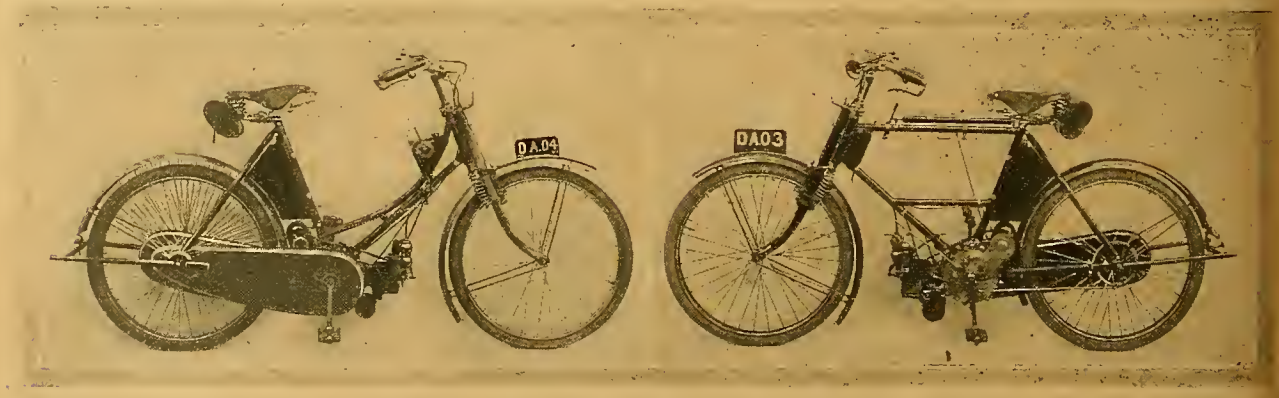
A NEW model which was entered for the Quarterly Trials is the 3½ h.p. Reg. Samson motor bicycle. This has a specially designed frame with sloping top rail to give a low position, the distance from the ground to top of saddle being 32in. The engine is a 3½ h.p. Precision, 85 mm. bore by 88 mm. stroke, with ball bearing crankshaft. The magneto is a Simms, and the carburetter either a B. and B. or Amac to order. The whole of the power unit —engine, carburetter, magneto, etc.—can be entirely removed from the frame by detaching three bolts. Mr. Samson has introduced several registered features of his own design on this machine, among which is a box on the front mudguard combining a front number plate and carrier for a spare detachable tube. The magneto driving chain is adjusted by means of four bolts in the sides of the engine plates. These bolts pass through a sliding magneto platform, and obviate any necessity to insert a spanner underneath the magneto. The pedal for the rear brake is carried on a separate stud, and not on the footrest. The filler cap of the petrol tank is exceptionally large, and is provided with a large gauze filter. All the lugs on the frame, to which are attached the stand, carrier, and foot brake, are brazed, not bolted. The cables for the front brake and valve lifter are concealed in the handle-bar, and issue from the centre of the handle-bar clip. The machines can be supplied exactly as illustrated, with full kit of tools, belt carrier, tool bag carrying tail numbers, etc. It will be noticed that the Druid spring fork is fitted, also the Lyso belt and 2¼in. Clincher rubber studded tyres. Mr. Reginald Samson, Ladywood Road, Birmingham, who is responsible for the design of this machine, also makes a speciality of several motor cycle accessories, which we hope to deal with at a later date. Most of the improvements which have been embodied in the machine are the result of practical riding experience.



A new model which was entered for the Quarterly Trials. It is named by its maker the Reg. Samson, and its principal features are described in the accompanying letterpress.

The Omega Lightweight.

A few days ago one of the partners of the Omega Motor Cycle Co., Wolverhampton, Mr. H. Summerhill James, kindly lent us an Omega motor bicycle for a short ride. Two of these machines were entered for the Quarterly Trials on Wednesday. For the benefit of those of our readers who did not see this machine at the last Stanley Show or the illustration and description of it which appeared in our show report, we would point out that the machine closely resembles a pedal bicycle, the crank case of the engine occupying the usual position of the bottom bracket. Through the centre of the hollow engine crankshaft is fitted an axle on which are cranks and pedals for starting and assisting the machine up steep hills. The reduction in gear is effected by means of an epicyclic train, the drive from the motor to the rear wheel being by chain, which is enclosed in a metal case. There is also a friction clutch contained in the crank case, which is operated by means of a lever on the handle-bar. The cylinder is horizontal, the carburetter is in front of the cylinder, and the magneto, which is gear driven, is mounted on the crank case casting. The petrol tank is behind the seat tube, and the oil tank and pump behind the steering socket tube. Two brakes are fitted, one a front rim brake, the other a back-pedalling band brake.



Omega lady's and Gentleman's model lightweights. The engine is horizontal, and the transmission is by gear and chain.

New Machines in the Quarterly Trials.—

When we took the machine over we were instructed to disengage the clutch, mount, and pedal the machine, which was quite easy, owing to its light weight. Once under way, the exhaust valve was lifted, the clutch engaged by means of the lever on the handle-bar, and on dropping the valve the engine fired immediately. The trial embraced about twenty miles of undulating roads, on which the machine behaved very well indeed, considering the power of the engine, which is only 1½ h.p., the bore being 65 mm. and the stroke 65 mm. For free-wheeling down long slopes the clutch is a great advantage, also for starting and wheeling the machine about. For riders weighing ten to eleven stones this machine should prove very serviceable. With a weight of over thirteen stones in the saddle we found it jibbed at one rather severe hill with a gradient of 1 in 9, but this was with the standard gear of 6 to 1. The makers are now trying a slightly lower gear for heavy-weight riders, which will doubtless enable the Omega to climb practically any main road hill in the kingdom unaided in the case of lightweight riders and with slight pedal assistance from others. The machine we tried was excellently finished, and reflects credit on those who are responsible for its production.

INTER-TEAM RELIABILITY TRIAL.

We have received the following communication respecting the inter-team reliability trial from London to Harrogate and back for the Service Cup at Easter. The results as published on page 326a of *The Motor Cycle* last week were supplied by C. C. Cooke, the hon. sec. of the Herts County A.C. (motor cycle section). "In your issue of Thursday, 14th, you published the 'official' result of the competition between this club and the Herts County M.C.C. I beg to inform you that the committee of this club does not agree with the results as published, because it claims that as the contest was arranged by a joint sub-committee of the two clubs, no result ought to have been issued until passed by this joint committee. Further, this club does not admit that the figures, as published, show the correct result. I shall feel obliged if you will kindly insert this notice in your valuable paper.—(Signed) CLIFFORD A. STERN, hon. sec. North West London M.C.C."

The following awards have been made by the North-west London M.C.C. in connection with the above run: Silver cups—R. G. Goslett, A. J. Brown, Glyn Rowden, H. C. Bean, George E. Purchase, G. Hollis, W. C. Davenport, C. Simpson, and E. G. Westacott.

GREAT YARMOUTH AND DISTRICT M.C.C. HILL-CLIMB.

The above club held a most successful hill-climb test at Ringland, near Norwich, last Thursday. The president, Dr. H. R. Mayo, superintended the proceedings, and Mr. R. H. Williams acted as starter, and was in charge of the electrical timing apparatus, which he designed and carried out. The club is greatly indebted to him, as upon this apparatus depended the success of the event. It is intended to use the same timing arrangement at Gunton Park later in the year, when Colonel the Hon. A. C. Harbord has kindly consented to the club holding a race meeting there.

The length of the hill is one-fifth of a mile, the total rise 105.6 feet, the steepest part being 1 in 6.9 feet. A standing start had to be made on a gradient of 1 in 13½. Notwithstanding this, everyone got away well, and only two failed to finish. The fastest time of the day was made by F. C. North on a 3½ h.p. Ariel, R. O. Clark making second fastest time on his 1909 C.F.N. Tourist Trophy mount.

Halfway up the hill the scene was a very busy and animated one, as each machine and rider had to be weighed for the purpose of working out the formula as laid down by Professor Callender, as the events were run on a handicap.

RESULT OF CLASS A HANDICAP (single-geared machines).

Place.	Rider and machine.	Remarks.
1.	R. O. Clark (1¾ F.N.)	Pedalled.
2.	H. Boswell (1¾ F.N.)	Pedalled.
3.	A. Adcock (4½ F.N.)	
4.	H. Adcock (5-6 F.N.)	
5.	C. F. North (3½ Ariel)	Fastest time.
6.	G. H. Cross (2¾ Anglian)	
7.	R. O. Clark (4 C.F.N.)	
8.	C. B. Duberly (3½ Ariel)	
9.	L. Wilford (3½ Premier)	
10.	H. Lock (3½ Triumph)	
	T. W. Hancock (4½ F.N.) ...	Failed.
	R. A. Milligan (4½ F.N.) ...	Failed.

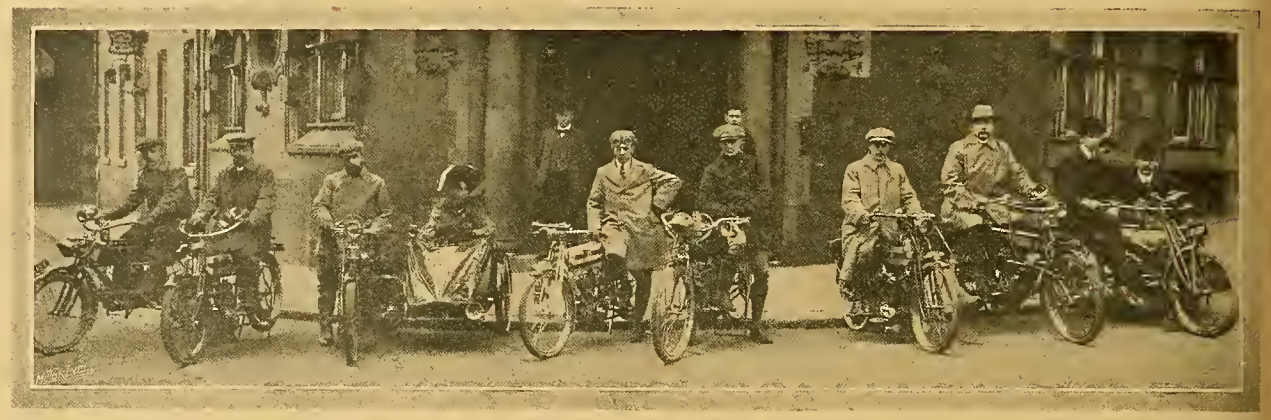
CLASS B (two-speed gear and clutch)

1.	R. O. Clark (2¼ F.N.)	Pedalled.
2.	H. Master (2¼ F.N.)	Pedalled.
3.	C. B. Duberly (3½ Ariel) ...	Fastest time.
4.	F. C. North (3½ Ariel)	
5.	V. H. Blake (2¾ Anglian)	
6.	H. Collins (5 Roc)	

The electrical timing apparatus at the start. C. B. Duberly (3½ h.p. Ariel), who made fastest time in Class B, is seen on the starting line.

The finishing point, showing R. O. Clark (1¾ h.p. F.N.), winner of the handicap in Class A, crossing the tape.

CLUB NEWS.



Riders who attended the opening run of the Stockport and District Motor Cycle Club. Multi-cylinders are very popular with members of this club.

Essex M.C.

There is a club run to Southend on the 24th inst., luncheon at the Marlborough Hotel at 1.30 p.m.

North-west London M.C.C.

Any members who are not competing, but who would act as marshals or checkers, at the Petrol Consumption Trial next Saturday, are requested to communicate with the trial hon. sec., G. H. Hollis.

Hertfordshire County A.C.

A splendid list of entries has been secured for the members' hill-climb on Saturday next at Aston Hill, near Tring. The entries in five classes total forty-five, viz., four in Class I., nine in Class II., nine in Class III., eight in Class IV., and fifteen in Class V. The classes are detailed on the next page. The open hill-climb is on May 7th.

Walthamstow M.C.

The above club held its first competition of 1910 on the 10th inst. It was the first of a series of four trials for W. S. Low cup. Result of first trial :

	Marks lost.
A. G. Peppercorn (3½ h.p. Triumph	0
A. T. Stanton (3½ h.p. Bradbury)	0
J. W. Percival (6-7 h.p. Fafnir Royal Tricar) ...	0
A. A. Blunks (3½ h.p. Rex)	1
J. H. Kerr (5 h.p. Rex)	5
H. J. Beal (3½ h.p. Rex)	45

Next Saturday a members' hill-climb will be held.

Newcastle and District M.C.

A slow hill-climb was held on the Benton Bank, Newcastle, last Saturday afternoon. The event, unfortunately, took place in a heavy downpour of rain, which considerably marred the success of the competition. The results were :

Single-cylinders.—R. S. Ellis (3½ h.p. Rex), 1m. 8⅘s., winner ; D. Mallett (3½ h.p. Bradbury), 59s. ; C. Spencer (3½ h.p. Bercley), 43⅕s. ; S. Hudson (3½ h.p. Premier), 30s. ; F. Keir (3 h.p. Dene) pedalled and was disqualified ; E. L. Bates (3¾ h.p. N.S.U.) did not finish.

Twin-cylinders.—F. Holzaphel (5 h.p. Rex), 49⅗s., winner ; F. Mallett (6 h.p. N.S.U.), 43⅘s. ; R. S. Ellis (5 h.p. two-stroke Rex) did not finish.

Birmingham M.C.C.

The Trials Committee met on the 15th inst. to make final arrangements for the hill-climb on Saturday next. Full particulars will be issued to all members to-day (Thursday). The reason for not disclosing the name of the hill until the day of the climb is, in the first place, to avoid trouble with the police, and, secondly, to give all members an equal chance. There will be three classes, for light-weights, singles, and twins respectively.

The run to Warmington on Saturday, the 30th, will not count for the attendance prize, as several of the members have expressed their desire to join in the Coventry and Warwickshire M.C. Military Reconnaissance. The meeting place is the Barrack Square, Coventry, at 11.30 a.m.

The A.C.U. (Midland Centre).

The annual meeting of the above Centre was held at headquarters on Thursday evening last, when the following officers were elected : Chairman, R. Vernon C. Brook ; hon. secretary and treasurer, H. C. Pickering ; hon. auditors, E. W. Winckle and Howard Smith. The accounts for the past year were examined and the balance, amounting to 17s. 7½d., was carried forward.

Worcestershire M.C.C.

At a general meeting held at the Hop Market, Worcester, on Saturday evening, the 16th inst., G. R. A. Deacon, "Bronsil," Hill Avenue, Worcester, was elected as joint hon. secretary of the above club. An assistant secretary will be appointed later.

Twelve new members were enrolled and a committee formed, which will meet shortly to arrange fixtures.

Streatham and District M.C.C.

A members' hill-climb was held on Tilburstow Hill, Godstone, Surrey, on Saturday last. The weather was showery, but the road surface was good. Machines were weighed at Caterham railway station. The results on A.C.U. formula are as follows :

CLASS I. (Engines under 500 c.c.)

Place	Competitor and machine.	Figure of merit.
1.	A. R. Hunter (3½ h.p. Triumph) ...	.01141
2.	H. Hunter (3½ h.p. Triumph)	.01139
3.	G. F. Hunter (3½ h.p. Triumph)... ...	.01120
4.	R. G. Mundy (3½ h.p. Triumph) ...	.01056
5.	S. H. Pattison (3½ h.p. Triumph) ...	.01054
6.	G. D. Nelson (3½ h.p. Chater-J.A.P.) ...	.01031
7.	J. H. Jeffrey (3½ h.p. Zenith Tricycle)	.00921
8.	C. J. Feeny (3½ h.p. Triumph)	.00903
9.	J. W. Ayres (3½ h.p. Zenith)	.00703
10.	R. G. Nye (3½ h.p. Rex)	.00677
11.	L. G. Callingham (3 h.p. Ariel)... ...	.00640

CLASS II. (Engines over 500 c.c.)

1.	W. Cooper (3½ h.p. Bradbury)	.01098
2.	H. A. Johnson (5 h.p. Vindec)	.01038
3.	C. E. Davies (5 h.p. Rex)	.00851
4.	D. R. Greig (3½ h.p. Bradbury)... ...	.00846
5.	D. Pattison (5 h.p. Patna)	.00749
6.	F. Harvey (5½ h.p. N.S.U.)	.00679

CLASS III. (Passenger machines.)

1.	H. P. White (3½ h.p. P. and M. and sidecar)	.01182

The fastest time of the day was made by H. Hunter, the next fastest being A. R. Hunter and G. F. Hunter.

RESULTS OF SEALED HANDICAP.

1. H. A. Johnson (V.S.), rec. 24 secs.
2. A. R. Hunter (Triumph), rec. 18 secs.
3. D. R. Greig (Bradbury), rec. 29 secs.

Club News.—

Wansbeck M.C.

The above club opened the competition season with two hill-climbs, fast and slow, held at Welden Bridge Hill. The attendance was good. The gears of competitors' machines were limited between 4 and 6 to 1, each rider to enter both trials and to use the same gear in both. The fast climb results were: T. W. Hall (3½ h.p. Bradbury), 1m. 14s.; H. Howitt (Rex twin Speed King), 1m. 14½s.; J. Arkle (3½ h.p. L.M.C.), 1m. 35½s. The slow speed was won by J. Arkle (3½ h.p. L.M.C.), the only competitor to complete the climb. The members were afterwards entertained to tea by their president, Mr. J. J. Hall.

Southport M.C.C.

The above newly-formed club held its opening run to Ribchester. A somewhat longer run had been arranged, but owing to the limited time before darkness the original route was slightly curtailed. Although the roads were very dusty, a most enjoyable afternoon was spent.

Competitors in the slow and fast hill-climb organised by the Wansbeck M.C. at Weldon Bridge Hill.

Doncaster and District M.C.C.

The first run of the newly-formed Doncaster and District M.C.C. was to Swinderby (Lincs.), when nineteen members turned out. The membership is now twenty-seven. The home journey was *vid* Lincoln and Gainsborough. Mr. G. F. Stafford having resigned the secretaryship, Mr. R. Ebdell, of Rowenroyd, Queen's Road, Doncaster, has been elected in his stead.

North West London M.C.C.

The first club competition, a petrol consumption trial, will be held on Saturday next, over the usual course near Stanmore. May 7th is the date fixed for the Coventry and back twelve hours' ride. This run is usually the best supported competition of the year. As members are started in order of entry, it is advisable to enter as early as possible. The marks will be awarded on a slightly different basis from last year.

Hertfordshire County A.C.

A members' hill-climbing competition will be held on Aston Hill, near Tring, on Saturday next, at 3 p.m. There will be five classes open to motor cyclists, which will be as follows: Class I.—For bicycles manufactured in 1907 or previous years. Open only to members who have not previously won a prize in a hill-climbing competition; pedalling allowed. Class II.—For single-cylinder machines with fixed gears. Class III.—For multi-cylinder machines with fixed gears. Class IV.—For machines fitted with variable gears. Class V.—For any make of motor bicycle. Fastest time to win. Classes I. to IV. will be decided on A.C.U. formula. The machines must be presented for weighing at Boxmoor L. and N.W.R. Station between noon and 2 p.m. on Saturday. Number cards will be supplied at the weighbridge, and will be allotted in order of entry. Competitors will take up their proper positions at the bottom and top of the hill, and must remain in their places. No vehicle which has finished the ascent of the hill may return to the starting point without special permission.

The newly-formed Doncaster and District Motor Cycle Club's opening run was well attended.

Coventry and Warwickshire M.C.

The general idea of the military reconnaissance which will be held by the above club on April 30th is that Southland (red), having declared war on Midland (blue), crosses the latter's frontier, and on April 30th reaches a line with its divisions based on Oxford. Three Midland divisions mobilised at Coventry are facing the Southland army when information is received that a second red army is occupying Bedford and is advancing on Northampton. The duty of the defending force will be to reconnoitre all roads leading between the two armies, to forward the information gained to the army headquarters at Coventry. Despatch riders on motor cycles will be attached to the defending forces as well as motor cyclist scouts, who will ride in advance of the cars. Several motor cyclists will be wanted for each car, and members of clubs within a twenty-five mile radius of Coventry are invited to join in the run. Communications should be sent to E. W. Walford, hon. secretary, 19, Hertford Street, Coventry.

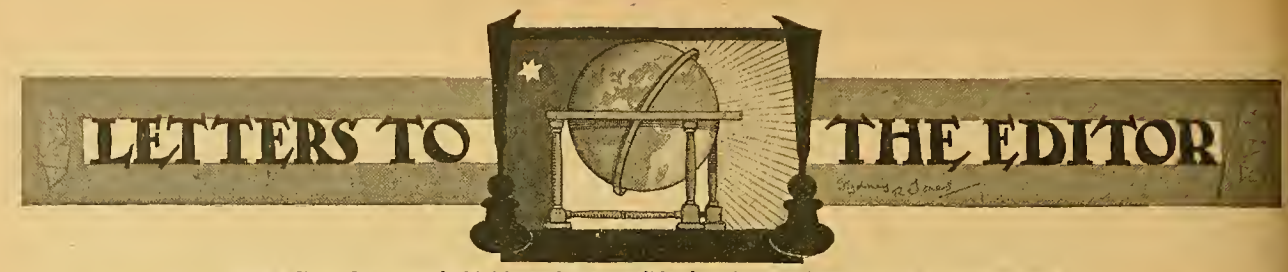
York County M.C.C.

At a recent meeting the arrangements for the Leeds-Edinburgh and back reliability trial, which is arranged for July 16th and 17th, were discussed.

There was a proposition put forward that this should be made into a 36 hours instead of 24 hours run, thus giving 12 hours at Edinburgh, during which time all machines would be locked up. This would do away with all-night riding. A vote on the subject was found to be even, the chairman giving the casting vote in favour of 24 hours.

Middlesbrough and District M.C.C.

The committee has decided to postpone the hill-climb until the 30th inst. There will be three classes—(1) open to novices who have not won a prize in any hill-climb. Entry fee to club members 1s., non-members 2s. A.C.U. formula. (2.) Single-cylinders and twin-cylinders confined to members only. Entry fee 1s. If six competitors in each event three prizes each, if four two prizes, three competitors one prize. Several novelties are included in the summer programme, viz., paper-chase, scout race, and flexibility hill-climb. It was decided that the club should do all that lay in its power to further the interests of the Northern League of Motor Cycle Clubs, and to attend the conference in this connection which is to be held at York. The results of the recent team trial run to Richmond in connection with the Middlesbrough and District Motor Cycling Club has just been announced, and the winning team is declared as follows: E. Young (3½ h.p. Bradbury), R. W. Day (3½ h.p. Triumph), and J. H. Dale (3½ h.p. Triumph). The prize, according to the rules of the competition, was to have been awarded to the team which did the journey at a speed nearest to twenty miles an hour. The winners put up a good performance, being only one minute out. The second team, which was two minutes out, consisted of R. Richardson (Moto-Rêve), H. Fangrieve (3½ h.p. Triumph), and W. Turner (3½ h.p. Triumph).



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Tyre Gaiters.

[4711.]—With reference to "Ixion's" remarks in a recent issue I for one would like to know where a tyre gaiter, for, say, 2¼in. tyres, can be procured. I mean the variety which encircles the tyre completely and fixes by lacing, either through eyelets or by hooks. Such would no doubt be a great boon, but up to the present I have not been able to discover any firm supplying such an article, although they are sold for car tyres. I often think how useless it is recommending articles without knowing for certain that they can be procured. Many things advised are very good, but, if they cannot be procured, what is the use of suggesting them? Writers who make these kindly suggestions would greatly oblige by intimating where the articles can be procured, and then all would be well.

W. CLARIDGE.

Motor Cycle Tyres.

[4712.]—Mr. J. F. Briggs [No. 4680] airs his grievances on motor cycle tyres. As one who has had a little experience with such queer things, I should like to advise him to use the Dunlop security bolts, which are fitted with neat rubber seats and tops, and do not chafe the tube. If he adopts them he should have no trouble.

What kind of rim is he using? I suppose the same as fitted to his 1909 P. and M.—beaded edge. Then, surely, he must have a beaded edge cover on it. If he gets such spoke-head punctures as he says he does, I can only say that he does not know how to fit tyres. Does he, by the way, use chalk when fitting a tube? And why does he want to kink it? Then he says that the Michelin tube appears to be too long. No, it is not! It is made purposely longer than other tubes to prevent it stretching unduly, which would enable it more easily to puncture.

If Mr. Briggs is a rider of over twelve stone I strongly advise him to go in for a R.O.M. 2½in. cover, so long as he rides the 3½ P. and M., for it is a heavy machine. The cost of altering his rim would only cost about 6s. at any decent cycle maker's. He will then he able to ride in peace for miles, and miles, and miles.

I have no interest in either of the articles mentioned.

L. C. CUFFE.

The Motor Cycle in the United States.

[4713.]—I have only just seen the article by "Transatlantic" in the issue of January 3rd on the American motor cycle. "Transatlantic" is correct in some respects.

As regards the loop frame construction, I fail to agree with him on that point, as there can be nothing that can embody a stronger construction than a one-piece tubing in loop form.

Referring to the exhaust pipes being long and twisted, the reason for this is that we Americans attach a great deal of importance to general appearance, so that the silencer is placed out of sight, thus necessitating long exhaust pipes.

As regards enamel, I think that some machines are gaudy, but usually it is the purchaser who specifies a certain colour among optional colours. The manufacturers usually state that plain blue or black is best suited.

Now a word in regard to your foreign machines. I think they are pretty substantial looking and of good plain lines, notably the Triumph; the only fault I find is that there is much complication in the control in order to gain an end. There are too many levers and wires. Our system is simply twisting grips, which operate spark and throttle.

Boston, Mass. A READER.

Lightweights v. Heavyweights.

[4714.]—After reading "Twelve Stone's" letter in a recent issue, I feel I must give my own experiences from a lightweight point of view

About five weeks ago I purchased a twin 2 h.p. motor cycle, and since then have ridden it over 500 miles, my weight being twelve stones. My average pace works out at 20 m.p.h., and although this country (Wales) is not so hilly as the Lake District, we can boast of some excellent hills. In only one case have I had to assist with the pedals, and that on an exceptionally bad hill. During all the 500 miles the machine has not been touched with the spanner in any way, every run having been a non-stop. If reliability, portability, cheapness in running, and ease of handling in traffic count for anything, give me the lightweight. No more heavyweights for me (10 h.p. in particular). PORTABLE.

Automatic Carburetters.

[4715.]—I have followed the articles in *The Motor Cycle* on automatic *versus* two-lever carburetters with interest. My experience is that when one drives slowly round a dangerous corner and immediately faces a stiff hill, the setting of the extra-air lever becomes a matter of guesswork and luck. Sometimes one sails to the top at a good speed, and sometimes one gets off and pushes.

Now my ideal carburetter would automatically give a correct mixture at low speeds, and allow a quick opening of the throttle on hills without fear of misfiring. It would have an extra air lever to twiddle on the open roads where speed is permissible. Some car owners obtain something of this sort by fitting a Bowden air valve to the induction pipe of an engine with an automatic carburetter. N. S.

[We were shown recently a carburetter which should comply with our correspondent's suggestion. It will be described and illustrated very shortly.—ED.]

Wear of Canvas and Rubber Belts.

[4716.]—Your correspondent, the Rev. J. Gordon, says in his letter to you on the above subject, appearing on page 307, that "rubber belts, however efficient on a solo machine, are a perfect nuisance on a powerful twin with sidecar."

I have been using a 6 h.p. variable geared twin with sidecar attached for some considerable time, and I also do a large solo mileage each year, and until the commencement of the present one my views entirely coincided with those expressed by Mr. Gordon.

In February last, however, I fitted a 1in. Dunlop belt to the twin, and have since done some 700 to 800 miles with the sidecar, and the belt is absolutely as good as new. It has only been shortened twice, and runs fairly slack without ever slipping. Its strength must be enormous, for I never spare my machine, and often take 11 st. and even heavier passengers. The speed gear also puts an additional strain on the belt, as it is of the expanding pulley type, giving a variation from 3¾ to 1 to about 7 to 1.

Of course, I know that any well-made rubber and canvas belt ought to do well up to the first 1,000 miles, but my own experience is that belts often go to pieces in the first few hundred miles in sidecar use. The Dunlop looks none the worse yet for the heavy work it has done.

May I add to the host of others you have received my appreciation of the fact that you have done away with Monday publication.

CHAS. S. LAKE, A.M.I.Mech.E.

The Unrolled Stones Danger.

[4717.]—Whilst returning from Sheffield to Leeds late on the night of April 11th I had the misfortune to become acquainted with the above danger in a way which might have proved very serious for me. I have frequently read of it in your paper, but this was my first experience, and I hope will be my last.

The patch was about forty yards long, and covered the whole road with the exception of a narrow track at the side, and it was near Chapeltown. There was no warning light or anything to call the attention to the danger. I was riding very carefully and at a slow pace, as I am not well acquainted with this portion of the road, nor am I keen on night riding at any time, but the impact was sudden and startling. My light went out, and I was nearly thrown off as the machine bounded and swerved across the road and I pulled up at the foot of a hedge. I could hear one or two people about, but no one came near me to ask if I was hurt or required assistance, which I am thankful to say I did not. It is almost impossible to discern a patch of unrolled stones at night until one is on top of them, and it seems to me criminal that urban district councils should allow users of a public highway to be exposed to such a danger without making any attempt to warn them of it. A red light at each end of the patch would call attention to it and save disaster. I trust you will insert this letter in your widely circulating paper, as I am sure too much prominence cannot be given to a subject of such importance to all who have at times to use the road at night.

T. CARTER.

Dry Battery Ignition.

[4718.]—For several weeks past there have appeared letters from your readers dealing with dry battery ignition, some of which have been highly complimentary to my dry battery, particularly the "Flash" motor cycle size. The correspondent "D. S." in your issue of the 31st ult. raises a point I should like to make quite clear to users and prospective users of this system of ignition.

To obtain the best results from any dry battery a good plain coil with a make and break contact breaker which makes a reliable contact of the shortest possible duration should be employed; most make and break contact breakers are suitable if the blade is adjusted as lightly as possible.

When a trembler coil is employed it is important to make a careful test of the current consumption, which can be varied considerably by the adjustment of the trembler screw, but in any case a make and break contact breaker should be employed, the contacts being adjusted a little closer, so as to allow of a longer duraton of contact necessary for the satisfactory operation of the trembler.

The only satisfactory method of testing the actual current consumption of a coil is to connect a sensitive dead beat ampère meter having a very open scale, reading at one-fifth to two-fifths of an ampère in circuit with the battery, and then run the engine at its normal speed, when a steady reading will be obtained.

With the "H. H." non-trembler coil and a good make and break contact breaker, the current consumption should not exceed one-fifth of an ampère, whilst with the "H. H." trembler coil and a slightly closer adjustment of contact breaker the current should not exceed one-third of an ampère with the engine running at normal speed.

It will be at once apparent that by decreasing the current consumption by one-half, the mileage obtainable from the battery will be more than doubled, whilst burning of the platinum points is obviated and general reliability greatly increased.

I must apologise for the length of this letter, but from the letters recently appearing there is no doubt that the subject is one of great interest to motor cyclists.

A. H. HUNT.

Belts and Other Topics.

[4719.]—I should like to sympathise with H. S. Phillips [4690]. I have had a similar experience with a well-known firm of rubber belt manufacturers. My belt began to go very badly after 850 miles on a 2¾ h.p. lightweight twin! The core was not nearly central. I wrote to them and sent a piece of the belt; they said it was last year's type, and they would send me another if I sent the old belt and 6s. 6d. (original cost 11s.) I replied that a new belt would probably deteriorate before I had time to use it, as I had had at once to purchase another spare, which would last me a good time; as to it being last year's pattern I bought it on a new machine on January 24th, 1910. In ordering the machine I had asked for a Whittle instead of the standard, but the firm replied that it would slow the machine considerably, slip when new, and grip too well when worn in. I have met a friend since who has used one on the same machine for a very long distance, and he is perfectly satisfied, and would not change back in a hurry. I am sorry I gave way. The belt firm have not replied to my second letter asking for 5s. instead of a belt cheap.

I am surprised to find that B. H. Davies in a recent issue says he found "two copper washers under the lid of the float chamber made the level right," as my petrol level is

Opening meet of the Cambridgeshire Motor Cycle Club. This organisation consists of about fifty riders, and, as showing the keenness of the members, we may cite the fact that thirty-five took part in this run to Bedford.

rather low and I do not want to tamper with the jet. I tried his advice, but found that one washer made the spirit overflow all over the place. His needle valve must have been very worn to bear two.

[Obviously the washer used by Mr. Vine was much too heavy.—Ed.]

In contrast to the belt company's attitude I should like to mention how the R.O.M. people treated me. I returned my back tyre and tube which had had two punctures and a burst at the bead; after 1,500 miles the tread was still in good condition, rubber-studded. I sent tyre and tube by post, and said I should like them replaced by return as I was in a hurry. Two days afterwards I received a new tyre and good second-hand tube by rail at 9 a.m., and by post a letter saying the old tyre was unsatisfactory, and they hoped their replacements without charge would meet with my approval. It did, and I let them know it by post, as well as through the medium of your columns.

B. T. VINE.

An Appreciation of a Lightweight.

[4720.]—"Well, I must say, after reading *The Motor Cycle* for April 7th, I am content with my little Motosacoche. Just returned from calling at Lady W——, and it took me up the steep bit of tramway beautifully. I go to Elmstone Sunday by Sunday without a bit of trouble from start to finish, take my service, and come back again, and the country is lovely."

Dear Mr. Editor, the above is an extract from my journal, and I thought it hardly fair to my nice little machine to hide its praise, and so I send it to your useful paper to publish if you like. And let me add what I consider its praiseworthy points.

First: It climbs stiff hills, I wish I had known it earlier, in Bucks, when I was constantly getting involved between high hills on a motor of another make. On my Motosacoche I have not yet met the hill it will not go up with just a little help from me if the belt is not tight. I have now learnt how to take off a bit at the end without any trouble.

Secondly: The wings on both sides to catch the wind are a decided gain. The air mixture is automatic, and I never know what over-heating is.

Thirdly: I have the free-engine device, and this is a great comfort to me, as I can mount as I do with my ordinary bicycle, but with less hopping—in fact, a shove off. This to an old man—I am past 70—is a great advantage, especially as I can mount uphill. The weight of the machine is only 80 lbs.

I should say I am passionately fond of the country after some fifty years, less furloughs, in India, Mauritius, Ceylon, and other places. I can recommend the machine to any persons of my tastes, who love English scenery, but who have been longer away from home than at home, and now when they are getting too old for pedalling a bicycle still wish to enjoy God's scenery, his glory in the country, without undue fatigue.

"O, what a glory doth this world put on
To him who with a fervent heart goes forth!"
—Longfellow.

(Canon) V. W. HARCOURT.

Water-cooling on Motor Bicycle Engines.

[4721.]—We have read with much interest the articles and letters which have recently appeared in your valuable journal on the subject of water-cooling on motor bicycle engines, especially the several references made to Mr. Green as one of the early pioneers in this direction. But for this we should not have asked you to insert this letter.

We feel, however, to remain silent any longer might be misinterpreted, and, further, perhaps that some explanation is due to those of your readers who have been anxiously looking forward to the day when a water-cooled motor bicycle engine such as they have so long been waiting for would be *un fait accompli*.

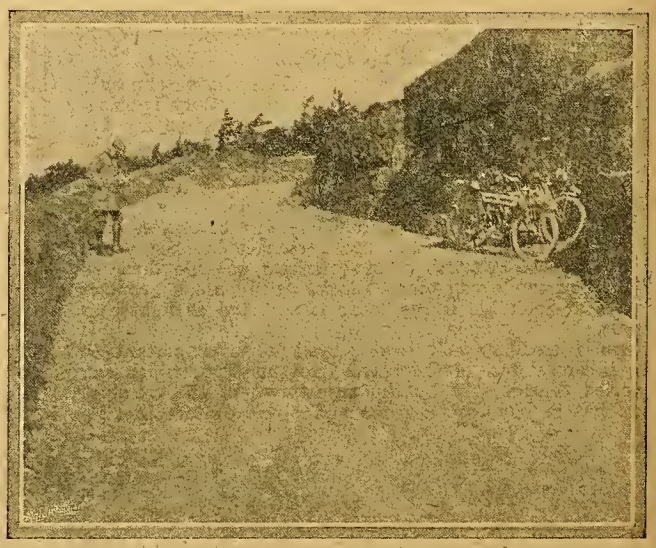
It is many years since Mr. Green attempted to solve the problem of making a water-cooled motor bicycle engine which should embody the essentials of extreme lightness with a compact and neat design. The result of his earliest efforts was first shown at the Agricultural Hall in March, 1906, when we exhibited a patent water-jacket and cylinder adapted to a machine of standard make. Subsequently a few new sample machines were made, which amply proved the value of the invention, but soon afterwards, the motor bicycle trade becoming affected by the general depression of the motor industry, we decided to await a more favourable opportunity before placing the invention on the market, leaving Mr. Green to take advantage of the interval to make still further improvements in his invention. We had just begun to make arrangements to put this improved engine on the market when the demand which suddenly arose for light engines for flying purposes absorbed the whole of our attention, compelling us to postpone carrying out our intentions with regard to motor bicycles yet a little longer.

We are glad to be in the position to inform your readers that steps are now being actively taken to place Mr. Green's invention on the market. We shall be happy to furnish further information on application.

GREEN'S MOTOR PATENTS SYNDICATE, LTD.,
J. Miller, Managing Director.

A Jaunt in the North Riding.

[4722.]—I was much interested in the above article in the issue of the 7th inst. I can vouch for the rough surface of the road over Wass Bank and the ruts, together with the stiff gradient. A friend of mine and I rode up it in the dark after the hill-climb on the Saturday at Sutton Bank at Easter. The surface was covered with loose stones, and I had a puncture from one of them, but my



Triumph climbed it well. My friend had a nasty spill on the top in one of the ruts and broke off his right pedal and bent his footrest. Helmsley was safely reached after a most enjoyable ride from Southport. The photograph herewith [reproduced.—Ed.] was taken on Easter Monday near the top of Sutton Bank. R. HOLFORD JONES.

EXPERIENCES WANTED.

"R. G." (Birkenhead) would like to have readers' experiences with the Lodge double pole and single pole plugs working in conjunction. Does an engine so fitted show any appreciable difference in power and economy?

"H. E." (Bungay) would be glad of the experiences of readers who have converted a 1903 or 1904 Rex from surface to spray carburetter; also the mode of conversion and its effects.

NOTICE.

The Editor disclaims all legal responsibility in any way for loss of copy in the form of manuscript, drawings, or photographs submitted to him. Rejected manuscript, drawings, and photographs will only be returned provided a stamped addressed envelope is enclosed for the purpose.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

A Reply by our Legal Adviser.

I was cycling along a country road and met a farmer with a young sheep dog. The dog jumped at me as I passed (I was going slowly) and ripped my waterproof overalls. Can you inform me whether the owner is liable for the cost of repairs? I have his name and address and that of a witness.—O 3569.

The owner of the dog would not be liable in the case mentioned, unless it could be shown that he knew the dog to be of a savage disposition. Strong evidence would be required of this.

Detachable Tubes. Benzol.

(1.) Do you recommend the use of (a) butt-ended tubes; (b) any tyre filling (Pfleumatic, Miraculum, etc.)? (2) Will an ordinary motor cycle run on benzol or must the carburetter be altered?—H. V.

(1.) We regret we have had no experience with any tyre filling, though we have heard good accounts of both of the fillings named. Detachable jointed tubes are quite a success, and are most convenient in use, provided a spare is carried, as punctures can then be repaired at home. (2.) Benzol is apparently quite satisfactory for motor cycle engines. You might have to weight the float slightly. You will find some useful hints on this subject in *The Motor Cycle* for Jan. 24th last.

The Uses of a Clutch.

Kindly inform me: Would a Mabon clutch fitted to a 1909 Triumph enable me (a) to start from a standstill on a fairly steep hill? (b) To climb steep hills after turning a sharp corner better than at present? (c.) Is engine started with handle?—P.A.F.

(a.) A clutch that does not embody a change-speed gear will not allow you to start from standstill on a very severe gradient. Starting from a standstill depends on the gear ratio and weight to be moved. (b.) If you slow down for a sharp corner and allow the clutch to slip it would enable you to pick up speed again. (c.) We cannot recommend handle starting on the engine-shaft in the case of small magneto-ignited engines. It is far better to jack up the rear wheel, start the engine by means of the pedals, and then put the lever in the neutral position.

Slow Running.

My machine is a 1908 twin N.S.U., and although it runs excellently at high speeds, and will take any hill round here, yet I cannot get it to run slowly. At any speed under about seventeen miles an hour one cylinder does not fire regularly. I have tried new plugs, with no effect. The gear is 4 to 1. Is this too high? I shall be very much obliged if you can suggest something to help me out of my difficulty.—M., Meriden.

You do not state the horse-power. If your machine is one of the 6 h.p. models the gear is about right. To enable the engine to run slowly you probably require to close one of the air inlets. If you examine the carburetter you will find that there are two discs, the air openings of which should be varied by turning the disc round and locking it by means of a screw in the centre. Try partially closing one of these openings until the engine will run slowly. Inlet valve springs should be exactly the same tension, and the amount of opening should be the same, say one-eighth of an inch. If you have any doubt about the inlet valves, change them over, and if the change causes the other cylinder to misfire, you will know which of the inlet valves is at fault.

A. G. Miller, of Mitcheldean, Glos., who speaks in high terms of praise of his twin Premier. He informs us he recently took a ten stone passenger on the carrier of this machine a distance of 11½ miles in 24 minutes, and that he finds his machine a perfect hill-climber, most reliable, and silent.

Life of Magnets. A Club in Hampshire.

(a.) I have been told that a magnet never needs re-magnetising, but sometimes becomes "depolarised." Is this so? (b.) Is there any club which organises motor cycle competitions in or near the county of Hampshire? If so, could you give me the address of the secretary?—S. R. C.

(a.) Magnets may in some instances need re-magnetising, say after three or four years' continuous use, and they do not become depolarised. This is a term used in conjunction with dry batteries which are kept in continuous work for which they are not intended. (b.) The most active club in the county of Hampshire is the Southampton and District M.C.C. Secretary, Mr. H. Percy Young, Dunelm, 87, Shirley Park Road, Shirley, Southampton.

A Difficult Diagnosis.

I have just assembled my 3 h.p. Fafnir motor cycle, and find there is no spark when the lever is retarded, and it will not run slower than ten miles per hour. Last year I could slow down to five miles per hour. I have examined all the parts, and everything seems in good order; timing not interfered with. Above ten miles per hour the engine runs well. What would you advise me to do? Should I alter the timing, or have the coil tested (plain). Rocker in good order, and no missing above ten miles per hour.—T. B.

It is difficult to answer your query without personally examining the machine, but if you have altered anything in the way of valve springs, or setting, or opening of valves, that may be the reason why the engine refuses to run slowly. For instance, if the inlet valve spring has been substituted for a stronger one, that would account for it. The adjustment of the carburetter is also important. You say there is no spark when the lever is retarded. This would point to the fact that the contact breaker is badly adjusted, or when the lever is retarded it brings one of the wires into such a position that it short circuits. Before doing anything else, try another sparking plug, and set the points very close together. It is unlikely that there is anything wrong with the coil.

Setting of Trembler. Carburetter Adjustment.

I have a 1906 2¾ h.p. Ariel fitted with Minerva engine and Minerva Longuemare carburetter. The coil is a trembler, and I have a make and break contact breaker. (1.) How ought I to set the trembler? (2.) How ought I to set contact breaker? At present the machine is very difficult to start, and misfires very badly at slow speeds. But when going fast (with no alteration of throttle) it does not miss at all, and seems to run quite properly. I think it is the trembler, as I have had it set (by means of an ampèremeter) to take a minimum of current, and it gives a very high note. I do not think it is the mixture, as the engine misses badly at slow speed with every setting of the extra air, though it is all right when going faster with air half open. I have fitted to my main air intake a shutter, such as there is on a Bray's incandescent lamp to regulate the air. (3.) Even if I have too large a choke tube, will regulating this main air come to the same thing as altering the choke tube? (I believe the choke tube is too big.) (4.) What effects have over-oiling besides causing sooting?—AK 612.

(1.) You ought to set the trembler with the points touching one another as lightly as possible, so that you get a good spark and do not use much current. The coil should give a fairly high note. (2.) Set the contact breaker to make a fairly firm contact. The best way to adjust the contact screw is with the engine running on the stand. The points should not bear too hard together, or pitting and misfiring will result. (3.) Yes, you will get much the same results as by altering the choke tube if more air is required. If, however, the difficult starting is caused by too great air supply a smaller choke tube will improve matters generally. Some useful hints on the adjustment of carburetters appeared in the issue of April 7th. (4.) Over-oiling, of course, leads to an excessive amount of carbon deposit (which in turn causes overheating and knocking), and a dirty engine, as the oil exudes from every joint.

A Motor Cycle for Ladies' Use.

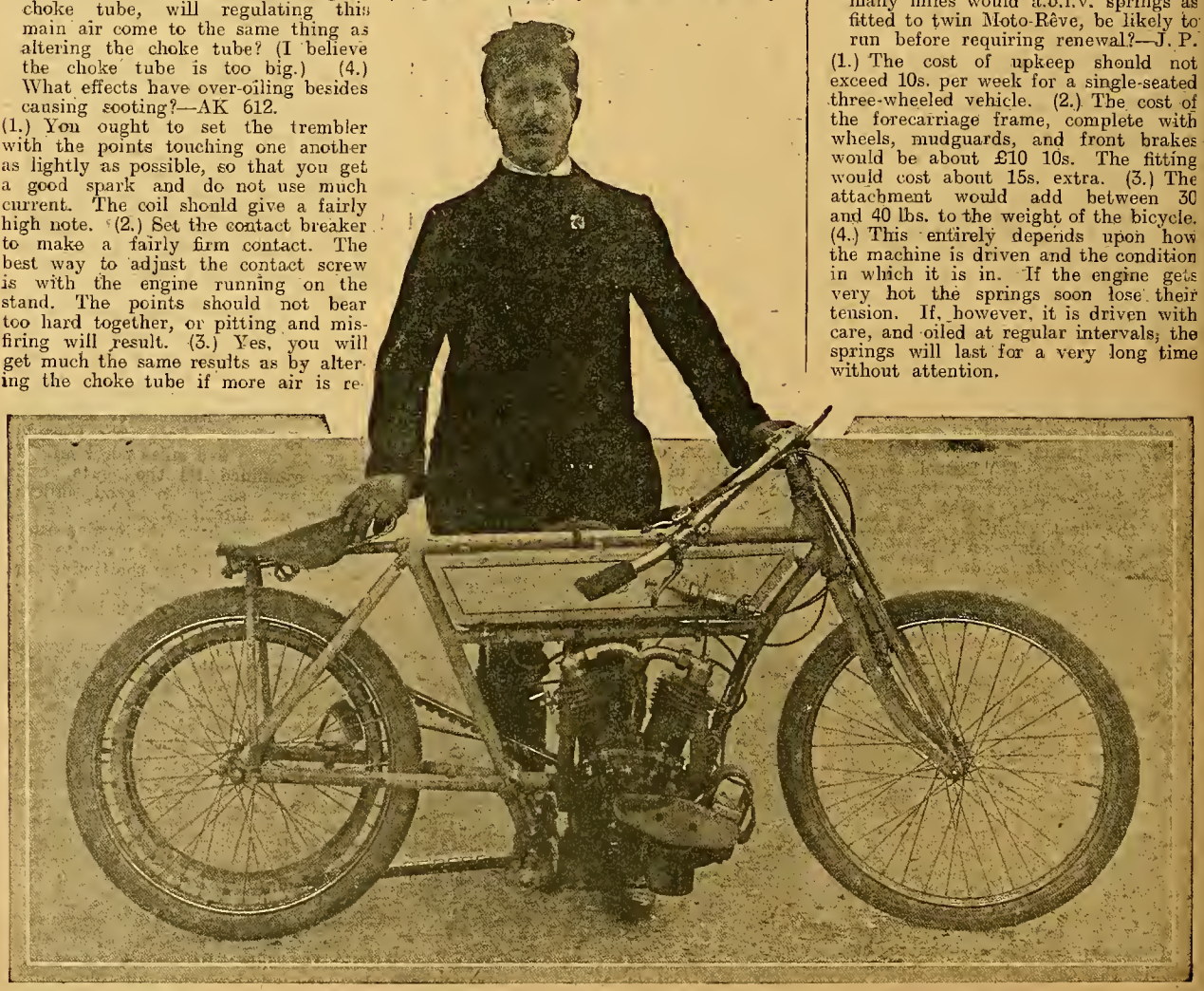
Kindly give me your opinion on the Motosacoche. Is it suitable for a lady? Is the machinery easy to learn and understand and the driving simple? Is it more difficult than on an ordinary cycle to keep one's balance? Is it really noiseless, and can you give me any idea of the expense of the upkeep? Also would it require a boy to clean and keep in order?—(Miss) C. A. F.

We should say that the machine in question is highly suitable for a lady. It is very light, and it is not difficult to control or to understand. There is really less difficulty in balancing a motor bicycle than an ordinary bicycle. You would find the machine to be practically noiseless. The expense of upkeep would be exceedingly small, say about 1s. 6d. per 100 miles for fuel. It would be best to get a boy to clean the machine, but, of course, this depends very much upon the inclination and wishes of the rider.

A Tricycle Attachment. A.O.I.V.

It is just possible I shall get a 3½ h.p. with two-speed gear, do away with the front wheel and substitute two, converting machine into a "two-wheels in front" tricycle (without forecarriage). Please tell me—(1.) The cost of upkeep for, say, 200 miles per week for a vehicle of this description. (2.) Could you tell me the cost of the two front wheel arrangement? (3.) What weight would this attachment add, taking into account weight of original front wheel removed? (4.) How many miles would a.o.i.v. springs as fitted to twin Moto-Rêve, be likely to run before requiring renewal?—J. P.

(1.) The cost of upkeep should not exceed 10s. per week for a single-seated three-wheeled vehicle. (2.) The cost of the forecarriage frame, complete with wheels, mudguards, and front brakes would be about £10 10s. The fitting would cost about 15s. extra. (3.) The attachment would add between 30 and 40 lbs. to the weight of the bicycle. (4.) This entirely depends upon how the machine is driven and the condition in which it is in. If the engine gets very hot the springs soon lose their tension. If, however, it is driven with care, and oiled at regular intervals, the springs will last for a very long time without attention.

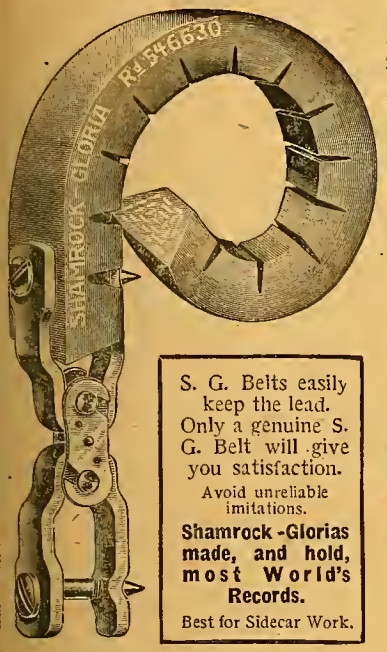


Martin Geiger, a consistent performer on a twin-cylinder V.S. at Brooklands and elsewhere. On Wednesday last week at the B.M.C.R.C. meeting he covered 46 miles 937 yards in an hour on the 5 h.p. V.S. shown. He will be remembered as the holder of the Land's End to John-o'-Groat's Sidecar Record on a 7 h.p. two-speed machine of the same make.

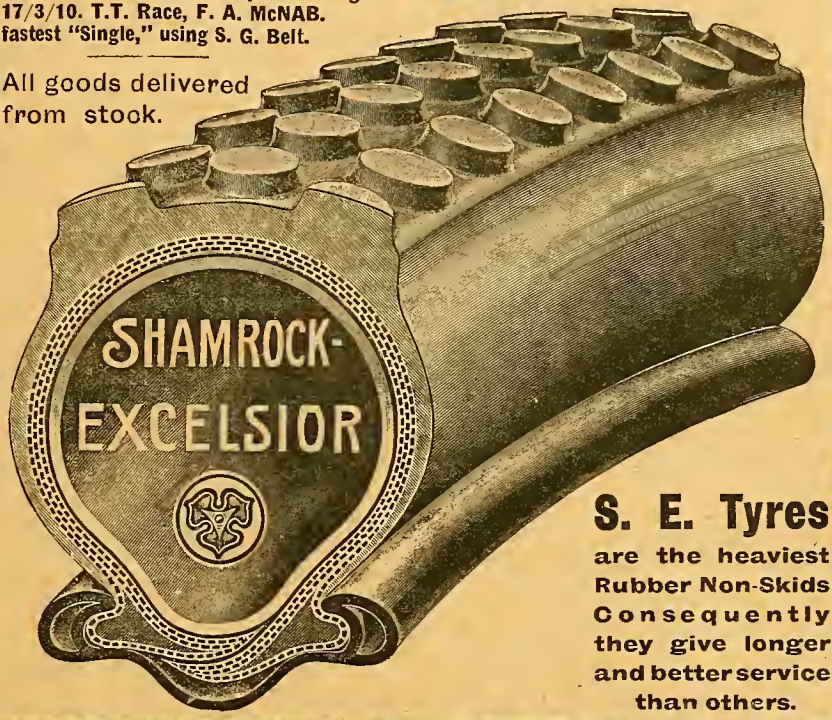
Best Results again at Brooklands.

28/3/10. H. A. COLLIER, 1st. Using a Shamrock-Gloria Belt.
17/3/10. T.T. Race, F. A. McNAB. fastest "Single," using S. G. Belt.

All goods delivered from stock.



S. G. Belts easily keep the lead. Only a genuine S. G. Belt will give you satisfaction.
Avoid unreliable imitations.
Shamrock-Glorias made, and hold, most World's Records.
Best for Sidecar Work.



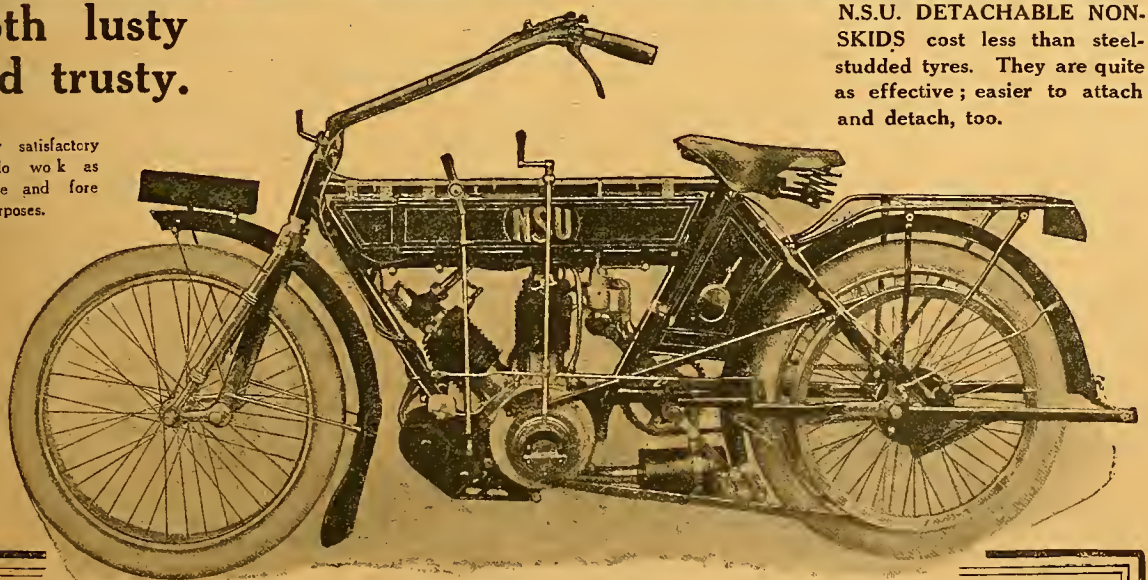
S. E. Tyres
are the heaviest Rubber Non-Skids Consequently they give longer and better service than others.

Write for Complete Lists.
SOLE MANUFACTURERS—
The HANOVER RUBBER CO., 29-31, Old St., LONDON, E.C.

Both lusty and trusty.

Equally satisfactory for solo work as for side and fore car purposes.

N.S.U. DETACHABLE NON-SKIDS cost less than steel-studded tyres. They are quite as effective; easier to attach and detach, too.



This excellent machine has 75 x 90 mm. cylinders, M.O.I.V., gear driven Bosch magneto protected by leather case, handle-bar control, spring forks, long comfortably arranged handle-bars, internal expanding brake, belt rim foot brake,

6 h.p. Twin-cylinder

N. S. U.

1in. V belt, mud flap to front mudguard, divided rear mudguard, footrests, stand, carrier, etc. If desired, this machine can be delivered with two-speed gear and free engine apparatus on engine shaft or in rear hub at extra cost.

Write for Special List of Twin-cylinder Models.

N.S.U. MOTOR COMPANY, LIMITED.

Offices and Showrooms—186, Great Portland Street, London, W. Goods and Repairs—83-85, Bolsover Street, London, W. A.J.W.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns — 1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

No. 2272.—2¾ h.p. MINERVA, magneto, Dunlop tyres, horn, toolbag, stand, carrier; **16 Guineas.** Guaranteed.

No. 2330.—3½ h.p. N.S.U., magneto, footrests and pedals, good tyres; **£17 10s.** Guaranteed.

No. 2287.—2¾ h.p. Twin FAIRY, Palmer tyres, in perfect condition throughout; **£12 10s.** Guaranteed.

No. 2073.—3½ h.p. Magneto QUADRANT, good tyres, spring forks; **£17.** Guaranteed.

No. 2261.—4½ h.p. Four-cylinder F.N., magneto, spring forks, footrests, good tyres, two toolbags, stand, carrier, etc.; **£24.** Guaranteed.

No. 2290.—3½ h.p. 1908 Two-speed REX DE LUXE, Cantilever seat, spring forks, good tyres, good solo or sidecar machine, **£25.** Guaranteed.

No. 1710.—2¾ h.p. 1909 LA FRANCAISE, horn, stand, carrier, as new; **15 Guineas.** Guaranteed.

No. 2282.—3½ h.p. Magneto BROWN, rubber-studded tyres, 1908 model, excellent condition. Guaranteed.

No. 1953.—5-6 h.p. BAT-J.A.P. Racer, adjustable pulley, Rom tyres, J.A.P. carburetter, almost new; **£35.** Guaranteed.

No. 2209.—6 h.p. MATCHLESS, Palmer tyres, magneto, Whittle belt, spring frame and forks; **£25.** Guaranteed.

No. 2164.—6-7 h.p. BAT, 1909 model, good tyres, Mabon free engine, stand, carrier, toolbag, etc., excellent solo or sidecar machine; **£35.** Guaranteed.

No. 2335.—3½ h.p. 1909 Two-speed HUMBER, Dunlop tyres, toolbag, usual tools; machine is as new, enamel, plating, engine, gear, etc.; **30 Guineas.** Guaranteed.

No. 2111.—4½ h.p. 1908 Twin MINERVA, spring forks, Continental tyres, excellent condition throughout; **20 Gns.** Guaranteed.

No. 2314.—2¼ h.p. Lightweight Two-speed F.N., 1910 model, spring forks, stand, carrier, pump, toolbags, etc. as new; **£33.** Guaranteed.

No. 2332.—3½ h.p. 1908 Two-speed G.B., Nala gear, good tyres, enamelled grey, lamp, horn, pump, two toolbags, etc., would make good passenger machine; **£25.** Guaranteed.

No. 2298.—1¾ h.p. Magneto MOTOSACOCHE, Druid forks, Palmer tyres, enamel, plating, engine, etc., as new; **£24.** Guaranteed.

No. 2333.—3½ h.p. 1907 MINERVA, spring forks, adjustable pulley, handle-bar control, stand, carrier, toolbag, etc.; **£15.** Guaranteed.

No. 2237.—5-6 h.p. BAT, M.O.V., 1910 model, Rom tyres, shop-soiled only; **£49.** Guaranteed.

5 h.p. 1909 Twin REX DE LUXE, Rom tyre, two-speed gear, engine, enamel, plating, etc., in excellent condition; **£36.** Guaranteed.

No. 1939.—8 h.p. MATCHLESS Racer, J.A.P. engine; winner of several competitions; price **£22 10s.** Guaranteed.

No. 1664.—3½-4 h.p. ROC, Druid spring forks, magneto ignition; **£15.** Guaranteed.

No. 1822.—2½ h.p. ARIEL, shop-soiled only, 1909 model; **16 Gns.** Guaranteed.

No. 1599.—1¾ h.p. F.N. Lightweight, magneto, spring forks; **£15.** Guaranteed.

A few only 1910 Two-stroke 3½ h.p. REXES, new; price **£48.**

No. 2308.—5 h.p. VINDEC Special 1908 model, two-speed gear and free-engine clutch; **£28.**

No. 2318.—4½ h.p. Twin-cylinder MINERVA M.O.V. Motor Cycle, fitted with Roc two-speed gear and free engine, spares, lamp, horn; **£25 15s.** Guaranteed.

No. 2247.—3½ h.p. VINDEC, magneto, good tyres, F.N. engine, toolbag, horn, footrests, stand, carrier; **£15.** Guaranteed.

No. 2249.—3½ h.p. WOLF. Clincher tyres, horn, toolbag, etc., enamel, plating, engine, etc., as new; **£15.** Guaranteed.

No. 2260.—2 h.p. 1909 MOTO-REVE, standard model, Continentals, lamp, horn, toolbag, etc.; **£24.** Guaranteed.

Two 5 h.p. 1909 Twin REX DE LUXE, two-speed gears, standard models, new; **42 Guineas** each. Guaranteed.

No. 2224.—New 2¼ h.p. 1910 ROYAL ENFIELD, standard model, Palmer Cord tyres. **Offers.**

No. 2208.—2¼ h.p. BRADBURY, h.-b. control, Clincher tyres, excellent condition; **13 Guineas.** Guaranteed.

No. 2039.—4 h.p. 1909 Roc, two-speed gear, lamp, horn, tools, etc., new condition; **34 Guineas.** Guaranteed.

A few left, 3½ h.p. new 1909 Standard REXES, complete with lamp, horn, etc.; **£35.**

No. 2193.—5 h.p. NORTON, Druid forks, adjustable pulley, handle-bar control, Rom tyres, front and back stand; **£25.** Guaranteed.

No. 2046.—2¾ h.p. 1909 Magneto ARIEL, handle-bar control, spring forks, in new condition; **£22.** Guaranteed.

Besides those quoted in this space, we can offer other good bargains. Do not fail to get our prices before definitely deciding. Recommended by all the leading makers for exchange business. Terms on application.

WAUCHOPE'S, 9, SHOE LANE, FLEET ST., LONDON, E.C.

'Phone, 5777 Holborn. Telegrams: "Opificer, London."

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office When this is desired, 2d. will be charged for registration and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No 000, c/o 'The Motor Cycle,' Coventry", or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20 Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days, and if no sale is effected, each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmoreland.

2¾h.p. Twin Fairy, low, good climber, new condition; £12.—Myers, Cottage, Ambleside.

1909 Lightweight N.S.U., magneto, spring forks, new condition, and perfect; £17.—Motorist, 28, Park Rd., Newcastle-on-Tyne.

F.N., 4½h.p., August, 1909, not run 500 miles, Brooklhurst lamp, horn, etc., as new, only wants seeing; £30.—15, Oaklands Gardens, Harrowgate Hill, Darlington.

TRIUMPH Motor Cycle, 1910, free engine, new, for sale; also F.N., second-hand, 2h.p., splendid condition; trial.—Robinson and Co., Motor Depot, Belford, Northumberland.

TRIUMPH Motor Cycle for sale, last year's machine, as new, Clincher rubber studded tyres, horn, and one or two spares; £35.—William Scott, 70, Shielfield Terrace, Tweedmouth.

SECTION II.

York and Lancashire.

4-CYL. F.N., shaft drive, magneto, splendid condition; £25.—Carr, Bury.

2¾h.p. Chain-driven Humber, engine in excellent order.—Carr, Fleet St., Bury.

3½h.p. Quadrant, spring forks, little used, in excellent order; £16.—Carr, Bury.

TRIUMPH, just overhauled, Roc two-speed; offers, cash.—Clegg, Suffolk St., Rochdale.

2½h.p. De Dion, good running condition; £8.—Marsland, 188, Worsley Rd., Patricroft.

3½h.p. Triumph, 1907, recently overhauled by makers, handle-bar control; £26.—Carr, Bury.

1909 Humber, 3½h.p., two-speed, Bosch magneto, perfect condition, little used, ridden in London-Edinburgh run; £29 10s.—Capt. Harkness, Depot, York

DOUGLAS, 1910, the King of lightweights, in stock; sole agent for Manchester district.—Gourlay, Fallowfield.

REX, 3½h.p., footboards, spring forks, Palmer, Clincher; £12 10s.—Roper, 1, Broadfields, Saxon Rd., Sheffield.

MOTO-REVE Twin, 1909, ridden only small mileage, lamp never been lit; £27.—McNab, Queen's Hotel Southport.

2¾h.p., Rothwell-Minerva; £8 10s., a bargain. — 12 Mount Pleasant St., Whiteacre Rd., Ashton-under-Lyne.

SALE or exchange, 3½h.p. Triumph motor cycle, in splendid condition; offers.—Clark, tobacconist, Failsworth, Manchester.

ROC, 4h.p., two speeds, h.b. control, heavy Clincher studded, spares; exceptional bargain, £26.—Mosley, Grindleford, Sheffield.

7-8h.p. Minerva, handle-bar control, spring forks, late 1908, new condition, plenty spares; £26.—Clarkson, 5, Gibbet St., Halifax.

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

3½h.p. Clarendon, magneto ignition; accept £16; exchange new B.S.A. De Luxe bicycle and cash.—Fred. Hunt, Whittlesea, Cambs.

QUADRANT, 3½h.p., good condition, new 1in. Watawata, carrier, two accumulators, spring forks, lamp, tools; £16.—H. W. Eads, Park Sq., Luton.

2¾h.p. Noble, re-bushed, re-enamelled, tyres good, looks like new; £15, or nearest offer; B. and B. handlebar control.—Bird, Bevan St., Lowestoft.

GUARANTEED Perfect, 2½h.p. De Dion, low, comfortable, every accessory, splendid condition; £11.—Ames, c/o Howell, Hall Rd., Fakenham, Norfolk.

3½h.p. M.M.C., Chater-Lea No. 6 frame, Longuemare Gloria belt, foot belt rim brake, 26 by 2¼ good tyres; £8 10s., or offer.—Riddelsdell, Hadleigh, Suffolk.

3½h.p. Brown, B. and B., h.b. control, two accumulators, low, and fast 26in. by 2½in. Palmers; £16.—L. C. Burn, Cam Villa, Gaywood, King's Lynn, Norfolk.

1908 Moto-Reve, new January, 1909, just overhauled by makers, Druids, B105, adjustable pulley, Watawata, 2in. rubber studded back, spares, low, fast; £18 10s.—Ben Scott, Dunstable.

WHAT Make Motor Bicycle do you fancy? We can supply and give early deliveries. We have actually in stock new Triumphs, Premiers, and Bradburys, cash or instalments.—Parker and Son, St. Ives, Hunts.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

TRIUMPHS.—Several good 1909 models from £34.—Withers, High St., Stourbridge.

QUADRANT, 2h.p., good condition, just overhauled; £5—10, Market Place, Redditch.

PREMIER, 3½h.p., twin, 1910 model, as new; best cash offer.—Withers, High St., Stourbridge.

F.N., 4-cyl., 5-6h.p., 1909 machine, splendid condition, numerous spares; £30.—Stour Cycle Depot, Stourbridge.

1908 Triumph, lately overhauled, perfect order throughout, will climb any hill; £28, or near offer; buying bigger power.—Davies, Western Rd., Hagley.

2½h.p. Lloyd, just overhauled, long bars, trembler, Palmer tyres, fine order, French grey, very reliable; price £8, genuine.—Dr. Templeton, Llantwit Major, Cardiff.

3½h.p. Cycle, splendid condition, Palmers, long, low, 35 to 40 m.p.h.; trial; £15, or nearest, or exchange magneto lightweight.—Motor, 12, Victoria St., Llerthyr Tydvil.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

3½h.p. 1909 Rex Tourist, new condition, new Michelin non-skid; £28.—Rowland, Salisbury.

TRIUMPH, 1910; delivery from stock after March 31st.—Davenport Vernon, Ltd., High Wycombe.

TRIUMPHS, 1910, delivery from stock; second-hand Triumphs taken in part payment.—Laytons, Bicester.

LATE 1907 Triumph, warranted perfect, detachable non-skids; price £28; low frame.—Harper, Calne, Wilts.

1¾h.p. F.N., two-speed, lightweight, and tricycle attachment to match; £50, new; no offers.—Phelps, Sandhurst, Berks.

3h.p. Chater-Lea, Barter engine, vertical; £16, or exchange with cash for good lightweight.—68, Corn., Witney, Oxon.

3h.p. Brown, accumulator ignition, engine as new; £16, or offer.—Bishop, 2, Montague Villa, Gloucester Rd., Newbury.

3h.p. Minerva, splendid condition, B.S.A. fittings throughout, thoroughly reliable; £8.—Radford, 9, Clare Rd., Maidenhead.

1909 N.S.U., 6h.p., twin-cyl., magneto, two-speed gear and free engine, excellent condition, lamp, horn, etc.; £35.—Hopkins, Woodleigh Rd., Ledbury.

1909 3½h.p. Rex, ridden 300 only, cost £46, £32 secures; also Fairy lightweight, new condition throughout, £13.—Eastleigh, Cookham Rise, Berks.

CHELON-MOORE, 1910, 3½h.p., delivered March, condition new, ridden under 100 miles, spares; 50 guineas, or nearest offer.—Finge, chemist, High Wycombe.

3½ AT, 4h.p., single, Whittle belt, new tyres, plating and enamel as new, in excellent working order; any trial; £16.—Kingston, Ashover, Long Ashton, Bristol.

1910 Premier Twin, never ridden, in crate as delivered from makers, absolutely perfect; must be cleared immediately; 42 guineas.—129, Alma Rd., Bournemouth.

3½h.p. Quadrant, 1908, Bosch magneto, with all spares, 2 Clincher tyres, in good condition, machine recently overhauled; £20, or offers.—4,360, *The Motor Cycle* Offices, Coventry.

3½h.p. Minerva, M.O.V., splendid condition, good climber, tyres hardly soiled, ready for touring; nearest £16, only wants seeing; trailer, 30s.—Crown, Sudwater, Bucks.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

1909 REXES 1909

Brand New and fully guaranteed.

1909 3½ h.p. Tourist REX £35

1909 5 h.p. REX DE LUXE, two-speed £46

The 5 h.p. Twin de Luxe (two speeds and free engine) is the best passenger mount on the market. No thumping and overheating on hills. Change your willing but under-powered single for one of these, and give your passenger a pleasant ride instead of walking exercise.

1910 DE LUXE SIDECARS.

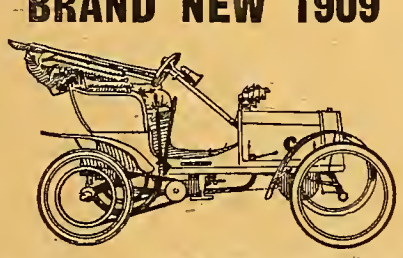
Special detachable fittings, no second adjustment necessary, 26×2¼in. tyre, art cane body, **£5 17s. 6d.** Usual rigid type, art cane, **£4 17s. 6d.** Illustrated pamplet on application.

SIDECAR MACHINES.

1909 Two-speed TWIN REX DE LUXE	£39 0
1909 5 h.p. TWIN REX, nearly new	£32 10
Special Two-stroke REX DE LUXE, two speeds ..	£29 0
1908 TWIN REX, magneto, spring forks	£26 10
1908 4½ h.p. MINERVA, Palmer Cords	£18 18
Four-cylinder F.N., magneto	£19 19
6 h.p. N.S.U., Palmer cord, magneto	£24 10
5½ h.p. TWIN REX, spring forks	£16 10
5½ h.p. TWIN REX, cantilever, new 2½in. tyres	£18 0

BARGAINS IN

BRAND NEW 1909



5½ h.p. O.T.A.V. VOITURETTES, complete with hood, lamps, tools, and spares, **£60.** Dual ignition £6 extra. Exchanges considered.

POPULARS.

1910 TRIUMPH, 3½ h.p., new	£45 0
1910 3½ h.p. TOURIST REX, second-hand, little used	
1909 3½ h.p. Magneto REX, nearly new	£29 10
1909 3½ h.p. REX Speed King, new	£32 10
1909½ 3½ HUMBER, new	£34 10
1909 4 h.p. N.S.U. DE LUXE, like new	£29 10
1908 3½ h.p. Magneto MINERVA	£22 10
Two-speed P. and M., acc. ignition	£21 10
4 h.p. ROC clutch, rubber non-skids	£24 10
4 h.p. ANTOINE, high tension magneto	£18 10
3½ h.p. Magneto QUADRANT, spring forks	£24 8
3 h.p. Magneto SIMMS, 2½in. Palmers	£16 10
3 h.p. SINGER, V belt, H.T. magneto	£16 10
1908 MOTOSACOCHE, splendid order	£19 19
1908 3½ h.p. Tourist REX, spring forks	£26 10

5/- weekly and reasonable deposit secures any of these machines. Discount to cash byers.

3 h.p. BRADBURY, long and low	£10 0
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. STEVENS, h.-b. control, Palmers	£10 15
3 h.p. CLYDE, magneto ignition, good	£14 10
3 h.p. M.M.C., vertical engine, spray	£9 10
2¾ h.p. KERRY, light and low, spray	£9 10
3½ h.p. REX, 22in. frame, re-enamelled trembler..	£7 10
3 h.p. ARIEL, M.O.V., spray	£10 0
3 h.p. HUMBER, spray, chain drive	£9 10
1¾ h.p. MINERVA, wants attention	£3 10
2 h.p. MINERVA Lightweight, spray	£5 15
2¾ h.p. DE DION pattern, spray, V belt	£5 10
2 h.p. QUADRANT Lightweight, h.-b. control	£5 15
2¾ h.p. DE DION Tricycle, grand condition ..	£5 0

Monster list on application. Cash offer considered.

SPECIAL OFFER.

26×2in. and 28×2in. beaded edge covers, 13/6 each. These are well-known standard make. New and perfect. Tubes, **4/11.** Bargain list on application. Approval.

1910 REXES. LIBERAL EXCHANGES.

Deliveries from stock of all models.

1908 16 h.p. Four-cylinder REMO, Bosch magneto, hood, screen, lamps, clock, speedometer, numerous accessories; cost £425. Accept **£165.** Any trial.

MOTOR BICYCLES FOR SALE.

4h.p. Antoine, low frame, spring forks, B. and B. carburetter, good running order; £10, or exchange lower power and cash.—Harrow, 4, Albert St., Windsor.

FOR Sale, 3½h.p. Auto Motor cycle, footboards, no pedals, nearly new, £10 10s.; also Humber tricar 3½h.p., just overhauled, £18.—F. Colbourne, Lowbourne, Melksham, Wilts.

1909 3½h.p. Minerva, spring forks, magneto, 1910 Amac, h.b.c., 1in. Shamrock belt, Mabon clutch, R.O.M. tyre, three brakes, footrests, spares, perfect condition; £22.—Simpson, jun., Sandhurst, Berks.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

NYE'S!—1910 3½h.p. Two-speed Humber; exchanges wanted; £40.

NYE'S!—1910 3½h.p. Two-speed Humbers; exchanges wanted; £50.

NYE'S!—1910 T.A.C., 4-cyl., exchanges wanted.

NYE'S!—1909 3½h.p. Rex, 1910 improvements; bargain, £27.

NYE'S!—1908 3½h.p. N.S.U., magneto, nearly new, £22 10s.

NYE'S!—4h.p. Lagonda, good order; £10 10s.

NYE'S!—1909 3½h.p. Ariel, magneto, Druids, not run many miles; £23.

NYE'S!—1908 Motosacoche, good order, spring forks; £12 10s.

NYE'S!—The nicest firm in London to deal with—69, Leather Lane, Holborn, London. 'Phone, 6299 Holborn.

DOUGLAS, 1910, in stock; no waiting at 5, Heath St., Hampstead, N.W.

REX, 1909, 3½h.p., cash.—Write, Turner, 72, George St., Baker St., London.

3½h.p. Rex, excellent condition; lowest £9 15s.—231, New King's Rd., Fulham.

REX, 5h.p., good reliable machine, overhauled; £13.—26, Canonbury St., Islington.

4½h.p. Twin Werner, good condition; £12.—Reed, 49, Nunhead Lane, Peckham Rye.

£6—2¼h.p. Singer, Longuemare, splendid condition; must sell.—38, Peckham Rye.

3¼h.p. Rex; £6 10s., bargain; wanted, De Dion.—Errington, 78, Coomer Rd., Fulham.

F.N., 2½h.p., good order; reason for selling; trial; £9—104, Thornlaw Rd., West Norwood.

4-CYL. F.N., 4½h.p., magneto, spring forks, like new; £25.—17, Algarve Rd., Wandsworth.

2¾h.p. Minerva, M.O.V., almost new; any trial; £15.—Gaston, 322, Kennington Rd., S.E.

WHITTLES.—Triumph, 3½h.p., late 1907, magneto, like new; great bargain to clear, £24.

WHITTLES.—Fairy, 6-8h.p., twin, latest No. 6 Chater-Lea spring forks, like new; £18 18s.

WHITTLES.—Kerry 2¾h.p. Model de Luxe, 26in. wheels, good order; bargain, £8 15s.

WHITTLES.—Rex de Luxe, 5-6h.p., twin, magneto, Roc clutch, nearly new, unscratched; £26.

WHITTLES.—Minerva, 4½h.p., twin, M.O.V., spring forks; cheap, £16 16s.—Whittles, Motor Exchange, Earlsfield.

BALHAM.—4h.p. Kelecom, fine condition; £12 15s.; exchange lower power.—48, Pentney Rd.

2½h.p. Rover Lightweight, in good condition; £11 10s.—Wilson, Lancaster Rd., Uxbridge.

TRIUMPH, 1910, delivery now from stock; £48 15s.—Rusticana, 523, High Rd., Chiswick.

4h.p. Bat, rigid, Dion coil, carburetter, new studded tyre; £11.—5, Bromfelde Rd., Clapham.

F.N., 2¾h.p., spring forks, good condition; £10.—Ibbetson, Station Rd., Church End, Finchley.

N.S.U., 3½h.p., magneto, Palmers, variable pulley; £18.—43, Barkworth Rd., Old Kent Rd., S.E.

2½h.p. J.A.P., low and fast, good condition; £6.—Martin, 15d, Douglas Rd., Euston Rd., W.C.

MOTOR, Minerva, 2½ to 3h.p.; gent going abroad; what offers?—118, Lowden Rd., Herne Hill.

1910 2¼h.p. F.N., £32, or exchange for higher power and sidecar.—220, Walm Lane, Cricklewood.

2¾h.p. Kerry, vertical engine, 26in. wheels, in excellent order; £7 15s.—43, Wimbledon Rd., Tooting.

MOTO-REVE, twin, 2h.p., late 1909, excellent condition; £26.—11, St. Mary's Terrace, Paddington.

EXCEPTIONAL Bargain.—3½h.p. Rex, as new; 16 guineas.—Chas. Swann, 26, Queen St., Gravesend.

F.N., 2¾h.p., condition perfect; ready for immediate running; £12.—3, Little Park, Enfield, Middlesex.

FAFNIR, 3½h.p., Chater-Lea, Palmers, built 1909, all accessories; £18.—110, Commercial Rd., Peckham.

LIGHTWEIGHT F.N., 1909 catalogue model, magneto, enamel and plating as new; trial any time; cheap, spot cash.—J. White, The Warren, Guildford.

2¾h.p. F.N., magneto, spring forks, brass tanks, stand tools, good tyres, new belt; £15.—Penrose, 33, Pelham Rd. South, Gravesend.

MOTOR BICYCLES FOR SALE.

HAMPSTEAD for Bargains.—Heath Street Motor Works, 5, Heath St. Tel.: 2678. P.O.

HAMPSTEAD.—3½h.p. Quadrant, magneto, handle-bar control, splendid order; £18; all accessories.

HAMPSTEAD.—2¾h.p. vertical 1908 Minerva, splendid condition, with all accessories; £11.

HAMPSTEAD.—3½h.p. Triumph, 1909, splendid condition, with all accessories; bargain, £35.

HAMPSTEAD.—1910 2¼h.p. two-speed F.N.'a; £40; no extra for easy payments.

HAMPSTEAD.—1910 Rexes, all models in stock; no extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; exchange or gradual payments taken; no extra.

HAMPSTEAD.—Premier, 1910, twin, as new, all accessories; great bargain, £40 only.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting; easy payments taken, 5 per cent. extra.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4½h.p., late model, splendid condition, all accessories; £20, special bargain.

HAMPSTEAD.—F.N., 4½h.p., latest model, handle-bar control, condition splendid, with accessories; £24.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—£5 upwards allowed on cycles in part payment for new motor cycles.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD.—2¼h.p. 1910 F.N., almost new, with accessories; £33, special bargain.

HAMPSTEAD.—3½h.p. 1909 Minerva, magneto, and spring forks, all accessories; £25.

HAMPSTEAD for Moto-Reva Model A.; in stock; no waiting; no extra for easy payments.

HAMPSTEAD.—F.N., late model, magneto, and spring forks, splendid condition, all accessories; £22.

HAMPSTEAD.—3h.p. Triumpb, good order, with accessories; £16, special bargain.

HAMPSTEAD.—5h.p. twin Peugeot, magneto, and spring forks, good order; bargain, £18.

HAMPSTEAD.—1909 twin Douglas, splendid condition, with all accessories; £26, a bargain.

HAMPSTEAD.—1¾h.p. F.N., good condition, all accessories; £13; magneto, and spring forks.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexs, Humber, etc.; exchanges or gradual payments.—Rey, 5, Heath St Tel.: 2678 P.O., Hampstead.

BAT, 80 by 80 M.M.C., perfect, low frame, fast; £10.—38, Hawthorn Rd., Edmonton (near Silver St.)

TRIUMPH, 3½h.p., Dunlop tyres, free clutch model, in perfect order, with lamp, horn, and numbers; £36.

5h.p. Vindec Special, twin, fitted with Phelon and Moore two-speed gear, magneto ignition, Truffault spring forks, complete, with Montgomery flexible sidecar, all in perfect order; £25.—Wallace, 36, Clarence St., Kingston.

£12.—3½h.p. Minerva, perfect condition, spring forks; wanted higher power.—14, Maple Rd., Surbiton.

2¾h.p. Kerry, just fitted new cylinder and piston; offers wanted.—Whitaker, Green Street Green, Orpington.

MOTO-REVE, early 1909 pattern, only ridden 600 miles; £20.—Letters only, S., 9, Gt. Tower St., E.C.

PHELON and Moore, 3½h.p., 1908, with 1909 fitments, as new; £37.—Henry, 54, Ashford Rd., Cricklewood.

3h.p. Motor Cycle, just overhauled, good tyres, low. Longuemare; £8 10s., offers.—Guest, Sawbridgeworth.

4-CYL. F.N., 5-6h.p., all accessories, perfect condition; £25.—Seen at F.N. Agency, Gt. Portland St., London.

BRADBURY, the hill-climber.—Come and see them climb at Hampstead.—Gardner, 6a, High St., Hampstead.

3½h.p. Midget Bicar, latest, mechanical Fafnir, low, light, reliable; £16 10s.—84, Rodenhurst Rd., Clapham.

3h.p. Fafnir-Chater-Lea, magneto, Brown-Barlow, handle-bar control; £13, offer.—Motor, 66, Manor Rd., Brockley.

5h.p. Antoine, very low Chater-Lea, fast, everything in good condition; £14.—Rooke, 26, Grosvenor Rd., Richmond.

FOR Sale, 4-cyl. F.N., new May, 1908, good condition; £23.—O. P. Shadbolt, Rylstone, Harefield, Uxbridge.

3½h.p. 1907 Minerva, new, tyres, splendid condition; bargain. £15 10s.—Particulars, 26, Billington Rd., New Cross.

A BIEL, 3h.p., good running order, tyres nearly new, two accumulators; will take £10.—M. L. Couchman, Hurstpierpoint.

3½h.p. Rex, 1908, magneto, handle-bar control, good condition; £19; after 7.—Hill, 47, Shepherd's Bush Rd., London, W.

THE IDEAL
SIDECAR MACHINE.

Shop-soiled 1909 5-6 h.p. Twin REX DE LUXE, Roc two-speed and free engine, handle starting. Our price £48, our price.
This year's pattern will cost you £62.
ALSO a few new 1909 Twin 5 h.p. REX Tourist Models. Our price £37, our price.
ALSO a few New 1909 3½ h.p. REX Tourist Models. Our price £35, our price.

CASH, CREDIT, OR EXCHANGE.

5-6 h.p. Twin REX, magneto, h.b. control	£20 0
1910 3½ h.p. REX Tourist, brand new ..	£45 0
1909½ 3½ h.p. REX Racer, soiled only	£32 10
6 h.p. Twin REX, spring forks, 26" wheels	£16 10
6 h.p. Twin REX and Sidecar	£20 0
3 h.p. CLYDE, magneto, Druid forks	£15 0
3 h.p. VINDEC, magneto, H.B. control....	£18 0
1910 3½ h.p. PREMIER, twin-cylinder	£45 0
1908 REX Lightweight, fine condition	£18 0
3½ h.p. REX, M.O.V. spray	£10 10
3½ h.p. 1906 REX, M.O.V., spring forks ..	£14 0
3½ h.p. REX, Bosch magneto, fine goer....	£16 0

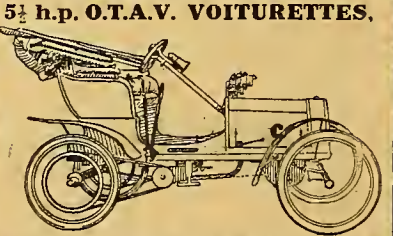
LIGHTWEIGHTS.

1908 N.S.U. Lightweight, Bosch magneto ..	£17 0
1908 REX Featherweight, magneto	£18 0
Twin-cylinder FAIRY, very smart.....	£14 0

£3 down SECURES ANY OF THESE. BALANCE 5/- per WEEK.
3½ h.p. Rex ..... £9 | 3½ h.p. Rex, M.O.V. £10

£5 down SECURES ANY OF THESE. BALANCE 5/- PER WEEK.
3 h.p. Vindec, mag. £16 | Twm Fairy £14
3½ h.p. Rex, mag. .. £16 | 3½ h.p. 1906 Rex.. £14
Push bikes accepted part payment.

BRAND NEW 1909
5½ h.p. O.T.A.V. VOITURETTES,



complete with hood, lamps, tools, and spares, £60 each. Magneto Ignition £5 extra.

6 h.p. REX LITETTE Tricar, water-cooled, two speeds, £35.

FARRAR'S HALIFAX SIDECARS.

LATEST TESTIMONIAL: "I am very pleased with sidecar; it steers and runs splendidly."
E. CUNNINGHAM.

£4 17s. 6d. complete with best tyres.
Twelve months' guarantee. Discount to the trade.

MISCELLANEOUS BARGAINS.

Rigid Sidecar, 24in. wheel	£3 0
,, ,, 26in. ,, ...	£3 10
,, ,, 28in. ,, ...	£3 0
Montgomery Sidecar, coach-built	£5 0
8 h.p. Twin Rexette Engine, two speeds ..	£12 0
5 h.p. M.M.C. Engine, W.C.....	£5 0
Carburetters—New 1910 Amac, variable jet	27/-
New 1910 B. and B.	27/-
New 1909 Amac	19/6
Old carburetter in part payment.	

WANTED—Good Motor Cycles. Cash waiting.

Farrar's Motor Works,
Square Road, HALIFAX.
Telephone 919.

MOTOR BICYCLES FOR SALE.

2¾h.p. Kerry, new tyres, belt, spring forks; £10 10s.—exchange with cash for 3½h.p.—Dunning, 102 Culford Rd., Kingsland, N.

2¾h.p. Phœnix Cob, two speeds, Bosch, B. and B. enamel and plating as new; £20 (private).—66 London Rd., Twickenham.

2¾h.p. De Dion, Chater-Lea frame, rebored, new piston and rings, in perfect condition; £9 10s.—Chilton, High St., Watford.

MINERVA, 2¾h.p., spring forks, low built, splendid condition; £12; exchange 1¾h.p., low built.—Renfree, 7, Hampton Rd., Ilford.

2½h.p. J.A.P., Chater-Lea, h.b. control, fast, light, in perfect running order; bargain, £13 10s.—Saunders, 34, South St., Eastbourne.

TWIN Rex, Mabon clutch, spring forks, and cantilever seat-pillar, new tyre, splendid sidecar machine; £17.—6, St. Faith's Rd., Talse Hill.

3½h.p. N.S.U., low, Watawata, Peter-Unions, spring forks, many spares; sacrifice £16; must sell.—Mater, 20, Tresco Rd., Peckham Rye, S.E.

BRADBURYS, 1910, in stock, £46; Bradbury, 1909 model, £36; liberal exchanges.—128, High Rd., Tottenham.

BROWN, 2¾h.p., vertical, perfect condition; £8 15s.—128, High Rd., Tottenham. 'Phone, 1982 Tottenham.

HUMBERS, 3½h.p., 1910, tourist model, £45; two-speed, £50, in stock; liberal exchanges.—128, High Rd., Tottenham.

PHŒNIX, 2¾h.p., magneto, two speeds, suit doctor; £14 10s.—128, High Rd., Tottenham.

TRIUMPHS, 1910, in stock, £48 15s. and £55; liberal exchanges.—128, High Rd., Tottenham. 1982 Tottenham.

3½h.p. Rex, magneto, spring forks, fine machine; £20.—128, High Rd., Tottenham.

1909 Lincoln Elk, 3½h.p., magneto, all latest improvements; £20; must sell.—38, Romilly Rd., Finsbury Park.

1909 3½h.p. Premier, as new, ridden 400 miles, good reason for sale.—Osman, 26, Mortlake Rd., Richmond, Surrey.

2¾h.p. Carry, low, long bars, Clincher tyres, splendid goer; sacrifice £8 10s.—Pulling, 28, Lakes Rd., Keston, Kent.

3½h.p. Triumph, ridden about 1,000 miles, every accessory, as new; £30 for quick sale.—23, Aberdeen Rd., Highbury.

5h.p. Vindec Special, in thorough good order, not done more than 6,000 miles; £19.—G. Pearce Jones, Claygate, Surrey.

MOTOSACOCHE, 1910, magneto, not done 50 miles; must sell; £33, or offer.—4,436, *The Motor Cycle* Offices, Coventry.

2½h.p. Minerva, only ridden 400, two accumulators, accessories; bargain, £12 15s. — Singer, Henry Rd., South Tottenham.

MOTO-REVE, twin-cyl., magneto, spring forks, in perfect cond[illegible] £15 10s.—F. Spearman, Bridge St., Bishop's Stortford.

METALLURGIQUE, 3h.p., in excellent condition; £10 10s.—F. Spearman Bridge St., Bishop's Stortford.

MINERVA, 2¾h.p., in splendid condition; £12.—F. Spearman, Bridge St., Bishop's Stortford.

KERRY, lady's, 2¼h.p., Palmer cord tyres, in splendid running order; £11 11s.—F. Spearman, Bridge St., Bishop's Stortford.

2¾h.p. Werner, just overhauled and rebored, tyres nearly new, good hill-climber; £13.—14, Keetons Rd., Bermondsey.

2½h.p. Kerry, very low, reliable, fast, two belts and spares; £10, or offer.—C.P., 26, Landseer Rd., Holloway, London.

3½h.p. Brown, h.b. control, accumulator, engine rebushed, fast, powerful, perfect; £13.—Largo, Horeham Rd., Sussex.

TRIUMPH, 1907, Palmers, horn, lamp, spares; £28.—Metropolitan Machinists' Co., 75, Bishopsgate Without, London, E.C.

ROYAL Enfield, 3½h.p., Minerva, Longuemare, Palmers, good condition; £10 10s.—Goddard, 41, Avenue Rd., Brentford.

1907 3½h.p. Triumph, magneto, thorough condition, all spares; £25.—Hering, 23, Carysfoot Rd., Stoke Newington N., London.

5h.p. Twin, R.O.M. tyre and contact, Amac, spring forks, etc. £18.—Write, Walker, 1, Overstrand Mansions, Battersea, S.W.

3½h.p. Centaur, in good condition, spring forks, tyres nearly new, spares, and lamp; £13.—Ponsford, 53, Gresham Rd., Brixton.

2¾h.p. Chater-Minerva, £8 10s.; also 1¾h.p. F.N. lightweight, £7 10s., bargain; appointment.—227 Underhill Rd., E. Dulwich.

2¾h.p. Kerry, splendid condition, fast, low, long handles, footboards; bargain, £10 10s.—G. Davies, 9, Park Rd., Enfield Lock.

4h.p., Antoine engine, Chater-Lea frame, long handle-bars, in very good condition; £13 10s.—Green, 172, Brownhill Rd., Catford.

In answering these advertisements it is desirable to mention "The Motor Cycle."

TRICARS FOR SALE.

QUADRANT Tricar, 5½-6h.p., twin engines, two speeds, coach-built, Palmer tyres, Whittle belt, and chain drive; for a quick sale £16; any trial.—Grove, Glencroft, Knight's Hill, Norwood, London, S.E.

5h.p. Peugeot, Chater-Lea frame, exceptional condition throughout, three speeds, handle starting, bucket seat, practically new machine, powerful and strong; £220.—Fielding, Buckden, Hunts.

PHŒNIX 4½h.p. Trimo, coach-built, two-speed, free engine, tyres as new, Palmer cords, fan-cooled, two accumulators; sell cheap; part exchange 3½h.p. motor cycle.—Riddelsdell, Hadleigh, Suffolk.

4½h.p. Riley Tricar, water-cooled, pump circulation, perfect order, spares, two tubes, three chains, plug, valve, contact screw and blade, tools; £25.—Abbott, 37, Lilycroft, Bradford, Yorks. (No dealers.)

5h.p. Twin-cylinder Air-cooled Rex Triette, two-speed gear, Roc clutch, Bosch magneto, cane forecar apron, perfect condition, specially built to order; £35. —No. 4,497, *The Motor Cycle* Offices, Coventry.

3-10h.p. Rexette Tricar, twin-cyls., water-cooled, wheel steering, seats three, car tyres, nearly new, two lamps, and generator, new apron, spares, in good condition; £35.—Bodden, 460, Edgware Rd., London

3h.p. Water-cooled Rexette Tricar, wheel steering, in perfect condition, lamps, pump, tools, coach-built front and bucket back seat, tyres as new; £30.—Worby, 3, Elizabeth Mews, England Lane, London, N.W.

PHŒNIX Trimo, sprung frame, 3½-4½h.p., two speeds and free, chain drive, Amac, Clincher studded and N.S.U., coach-built, new condition; any trial; £25, or good piano and cash.—159, Queen's Rd., Dalston, N.E.

10h.p. Lagonda Tricar, Dunlop tyres, handle-bar control, lamps, and tools, everything in perfect order, and machine ready for road; trial run given; price £39; open any time.—C/o Balchin, Schulz, and Co., 27a, Gloucester St., Southampton Row, W.C.

1908 Chater-Lea Tricar, 5-6h.p., coach-built, water-cooled, two speeds, sprung open frame, wheel steering, etc., absolutely as new; cost 86 guineas, take 22 10s.; motor bike and cash, or sidecar combination.—Francis, High St., Esher, Surrey.

TRICAR for Sale, in splendid condition, just thoroughly overhauled, 6h.p. Sarolea, two-speed gear, magneto, new Palmer cord tyres, very fast, climb anything; sacrifice £35, cost £110; selling only for ill-health.—Apply, Lumsden, 9, Otto Terrace, Sunderland.

LUMBER Tricar, just been overhauled, new Palmer tyres on front wheels, steel-studded tyre on back, chain driven, everything in perfect condition, pair of Lucas lamps; owner no time to ride; bargain, £25, or near offer.—Apply, A. Burman, 35, Ellerslie Rd., Clapham Park, S.W.

10-12h.p. Singer Tricar, three speeds and reverse, magnificent condition, just been completely overhauled, head, side, and electric tail lamps, beautifully fitted up, numerous spare parts; owner bought car; seen at Ng's Garage, Cambridge; price £45.—Dr. Gouldesbrough, Addenbrooke's Hospital, Cambridge.

NEW Humber Tricar, water-cooled, two speeds, free engine, handle starting, coach-built, thoroughly reliable, will climb anything, extra new back tyre, large assortment spares, very smart looking machine; railway compelled, and will drive 50 miles with purchaser; owner going abroad.—Apply, Smith, butcher, Bold St., Southport.

BARGAIN.—4½h.p. Phœnix Trimo, coach-built, two speeds, free engine, starting handle, Amac carburetter, handle-bar control, footboards, four new lamps, three new tyres, spare tyre, accumulator, chains, valves, bags, recently re-painted, varnished, and overhauled, also hood, span roof, specially built for tricar, felt covered cost £4); sacrifice £21, or exchange.—Edwin Smith, Midland Sq., Bakewell.

SIDECARS AND FORECARS.

PHŒNIX Forecar Attachment, as new; £6 10s.—At Wauchope's, 9, Shoe Lane, E.C.

SIDECAR, 26 wheel, rigid, upholstered in green; £3 3s.—1, Gascoigne Rd., Barking.

WICKER Sidecar Manufacturer.—A Cook, 37, Waterloo Bridge, London. Price lists on application

LEFT, rigid, cane, upholstered green, 26in. Michelin, adjustable; £3 5s.—28, Norfolk Rd., Dalston, N.E.

SIDECAR, good condition, fit any frame; Lowest £3 15s.—Markham, 91, St. James's Rd., Liverpool Rd., London.

CRAMFORD HILL Sidecars, £4 18s. 6d.; astonishing value; particulars by return.—128, High Rd., Tottenham.

SIDECAR, Basket Seat (upholstered), with springs, perfect condition; 22s. 6d.—108, Warstone Lane, Birmingham.

MILLS-FULFORD Castor Wheel Art Cane Sidecar; cost £14 14s. September, 1909. £9.—James, Hatter, Kidderminster.

WICKER Forecar, 3in. tyres, band brakes, C springs, all in excellent condition; £5.—J. Babington, The Cottage, Coulsdon, Surrey.

SIDECAR, brand new, genuine Chater-Lea fittings, comfortable; 7 guineas, bargain.—Goddard, 67, Price Rd., Streatham Hill, S.W.

SIDECARS £4 17s. baskets, springs, fittings; trade supplied.—Middleton and Co., Watson St., Newington Green, London, N. 2126 Dalston.

CAMEL

Franco-British Exhibition 1908.

3 *Grand Prix.* 8 *Gold Medals.*

As a chain is only as strong as its weakest link, a belt is only as efficient as its least considered essential.

The essential links in motor belting construction—Maximum effective pulling surface; Elimination of stretch; Tensile strength; Flexibility; Centring of core; Prevention of twisting, ends breaking, and surface cracking—when evenly considered and supported by suitable materials and experience, ensure a perfect whole.

Camel Belting, owing to its uniform wear, due to scientific construction, is offered and sold as being the nearest possible to the ideal.

Obtainable through all Agents.

⅜"	¾"	⅞"	1"	1¼"	
1/1	1/4	1/9	2/4	3/6	per foot.

F. REDDAWAY & CO., LTD.,

16, Great, Eastern St., LONDON. Works: Manchester.

3/6 *Nett.* 5d. *Post.*

Practical notes on Belting and Belt Driving. Fourth edition.

BELTS

SIDECARS AND FORECARS.

N.S.U. Sidecar, in splendid condition, new body, upholstered green, with cushion, 2½in. tyre; sacrifice £3 15s.—Philpott, Newfoundland Rd., Bristol.

SIDECARS.—Our £5 10s. are built from Chater-Lea fittings, including hub; our £4 15s. car is built from Chater-Lea lugs; all are complete with side strain stay, and mudguard included; second-hands from £3 15s., fitted while you wait free.—C. A. Edgar, 123, Holloway Rd., London, N.

THERE is only one sidecar, and that is the Oakleigh. Others try to imitate, but they only fail. Remember we are first. The cheapest and largest firm of sidecar builders in the world. We defy anyone to dispute it. Nothing but genuine stamped Chater-Lea fittings used throughout. Orders taken for next week's delivery. £5. —Oakleigh Sidecars, Ltd., 65a, Rosendale Rd., West Dulwich.

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SIDECAR COMBINATIONS.

6h.p. Antoine, two speeds, sidecar, 1½in. belt, all renovated; £27.—Firth, Bromley Rd., Bingley.

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N.S.U., 1908, 3½h.p., magneto, flexible sidecar, accessories; £30.—Filsell, Burnell Rd., Sutton.

3h.p. Bradbury, magneto, Montgomery sidecar, spring forks, Palmers; £14.—32, Durlston Rd., Kingston.

1909 3½h.p. Rex de Luxe and sidecar; £37 10s., or exchange higher power.—215, Monton Rd., Monton, Manchester.

£26.—3½h.p. N.S.U. and Sidecar, magneto, all spares, new condition; any trial.—Kirby, Capel Crescent Newport, Mon.

5-6h.p. Twin Sarolea Motor Cycle, in Chater-Lea frame, and art cane sidecar; £18.—Sear, Tram Terminus, South Chingford.

5-6h.p. Twin N.S.U., two-speed, 1908, two accumulators, and wicker sidecar, guaranteed; £28, bargain. —41, Ashford Rd., Cricklewood.

CHATER No. 7 Montgomery Sidecar, 6h.p., twin, magneto, chains, speeds, clutch, tyre good, beautifully got up; £39.—127, Hoe St., Walthamstow.

5h.p. Twin Sarolea and sidecar, perfect order, new tyres and Whittle belt; £15; owner bought car.—Apply, Harry Sinclair, 7, Netherhall Gardens, Hampstead.

PEUGEOT, 3½h.p., 1909, Chater-Lea, Roc 1910 two-speed gear, Bosch magneto, with Chater-Lea sidecar, perfect; £35.—Healey, 16, Rainbow St., Camberwell

3½h.p. Kerry and sidecar, Longuemare carburetter, Whittle belt, low and powerful, excellent condition; real bargain, £15.—Sommerfield, 332, Mare St., Hackney, N.E.

F.N., 4½h.p., 4 cyls., 1907, recently overhauled, £20; Triumph, 3½h.p., 1907, and sidecar, £28, or separate; owner going abroad.—Full particulars, write, B., Winterbourne, Weybridge.

5-6h.p. Twin N.S.U., 24in. wheel, magneto, handle control, horn, and lamp, just overhauled makers, thorough order; also Mills-Fulford 24in. castor wheel sidecar, spare cover.—242, West Parade, Lincoln.

4½h.p. Riley, water-cooled, and coach-built sidecar, two-speed gear, foot clutch, and brake, starting handle (same as a car), chain drive, nearly new tyres, in splendid condition; 28 guineas.—Conner, 736, Holloway Rd., London.

1909 P. and M. and rigid sidecar, special cane seat, Cowey speedometer, and many spares, in perfect condition, recently thoroughly overhauled by makers; £42, complete.—Write, Marcus Smith, Nunlands, Stanmore.

5½h.p. N.S.A., magneto, spring forks, new non-skids, and belt, and sidecar, £26 10s.; 6h.p. Peugeot, nearly new, £23 10s., very low; 3h.p. Fafnir, very good condition.—J. Chapman, 47, Highbridge St., Waltham Abbey.

3½h.p. Chater-Lea, W. and P. engine, magneto, clutch Amac, Lycett's belt, B105 saddle, spring forks, large carrier, stand, horn, lamp, and spares, with sidecar; bargain, £24, or sell separately.—12, Shaftesbury Rd., London, N

PHELON and Moore, 3½h.p., 1909 model, not been a thousand miles, absolutely as good as new, Palmer cord tyres, also Mills and Fulford castor wheel sidecar (new); price £60 the lot.—A.B., 39, Westbourne Terrace North, Paddington, W.

MINERVA, 8h.p., 1909, fitted Roc 2-speed, J.A.P. automatic lubrication, Whittle belt, lamp, horn, and numerous spares, Chater-Lea coach-built sidecar, guaranteed perfect; cash offers, or exchange 1910 Triumph.—Withers, High St., Stourbridge.

4½h.p. 1908 Stevens, with rigid coach-built sidecar, handle starting, Osborne four-speed pulley, new S.G. belt and dry battery, three nearly new Continentals, one brand new R.O.M. combination, spare cover, perfect order throughout, numerous accessories and spares; giving up motoring; complete, £30.—Motor, The Priory, Boston, Lincs

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3h.p. Humber, chain, accumulator, trembler, Dunlop good, guaranteed perfect order throughout, all tools, spares lamp, unused Hellesen, splendid climber: trial any time; £8, or near offer; also flexible Montgomery sidecar, fitted new Continental and tube, can be used with above machine; 55s.; must sell; bought twin.—Buxton, draper, Southminster

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ECLIPSE.—25h.p. Argyll, 4-cyl., semi-limousine, two ignitions; a real bargain, £155.

ECLIPSE.—40h.p. Napier, 4-cyl. tonneau, honeycomb radiator; a real gift, £68.

ECLIPSE.—18h.p. Siddeley, side entrance, hood, screen dual ignition; a gift, £115.

ECLIPSE.—16h.p. Chenard-Walcker, side entrance, two ignitions, hood, splendid condition; £115.

ECLIPSE.—25h.p. Clement, side entrance, two ignitions, hood; £115.

ECLIPSE.—16-18h.p. Leader, 4-cyl., 2-seater, magnet very smart runabout; £95.

ECLIPSE.—14h.p. Star, 4-cyl., M.O.V., side entrance excellent order; £75.

ECLIPSE.—14h.p. Forman, 4-cyl., M.O.V., side entrance, new condition; bargain, £95.

ECLIPSE.—14h.p. Mutel, 4-cyl., steel frame, hood, excellent order; £72 10s.

ECLIPSE.—12h.p. J.P., 2-cyl., long chassis, side entrance, hood, perfect order; £80.

ECLIPSE.—10-12h.p. Gnome landaulet, four seats splendid order; £77 10s.

ECLIPSE.—16h.p. Panhard chassis, steel frame, Krebs very good order; £55.

ECLIPSE.—6h.p. Siddeley, 2-seater, steel frame, reliable and good; £38.

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ECLIPSE.—10-12h.p. Star box delivery van, very good order; £50.

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ECLIPSE.—3½h.p. Raleighette tricar, two speeds, water cooled, splendid order; £20.

ECLIPSE.—5½h.p. Rex Triette, 2-cyl., very fine machine; £17.

ECLIPSE Engineering and Motor Co., 255, Earlsfield Rd., Wandsworth. 'Phone, 1135 Putney. Station Earlsfield, L.S.W.R., 15 minutes from Waterloo.

8h.p. Brown Car, detachable tonneau, very good order; £35.—Green, 172, Brownhill Rd., Catford, S.E.

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PALMER.—16-20h.p. 1907 Beeston Humber, side e trance, dual ignition, gate change, condition fi new; £175.

PALMER.—9h.p. Jackson, 2-seater, bucket body, ge eral condition like new; £85.

PALMER.—9h.p. taxicab, latest style, landaulet bod seating four inside, very smart; £150.

PALMER.—8h.p. Buchet chassis, late type, long strok fast running engine; £75.

PALMER.—16-24h.p. De Dietrich Chassis, late typ M.O.V., pressed steel frame; bargain, £85.

PALMER.—12-16h.p. Mutel, chassis, 4-cyl., cardan drive, late type, like new throughout; £60.

PALMER.—16-20h.p., Anglian, side entrance limousin all Aster fittings, and engine, silent and perfect £135.

PALMER.—14-16h.p. 1910 Darracq. I make th largest possible allowance for old car; £225.

PALMER.—Bleriot type monoplane, splendid machine has flown; price, less engine, £75, with engine £15

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MAGNETO Twin, or suitable for single; £4.—127, Hoe St., Walthamstow.

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2½h.p. Simms Engine, magneto, pulley, silencer, perfect order; 45s.—16, Chestnut Av., Derby.

2¼h.p D.D. Pattern, nearly new, exceptionally well made; 37s. 6d.—38, Peckham Rye.

ENGINES.—Roc, 4h.p., single-cyl., new 1910 type; early deliveries.—A. W. Wall, Ltd., Birmingham.

N.S.U. Two-speed Free Engine Gear, complete; £2 10s.—Lockyer, Lyndhurst, Parkstone Av., Hornchurch.

BARGAIN.—1½h.p. Steam Engine and Boiler, very best running order.—Particulars, Burton, Norwich Rd., Lowestoft.

2h.p. Singer Engine, with Simms magneto, fair condition; £4 15s., carriage paid.—Hovey, Blairgrove, Coatbridge, N.B.

2¾h.p. Calvert Engine, perfect, fitted with 1910 Brown and Barlow b.b. carburetter; £2 12s. 6d.—1, Gascoigne Rd., Barking.

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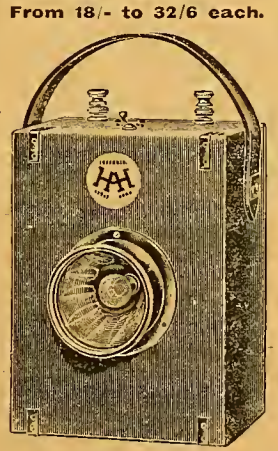

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BAT, 1909-1910, single, with P. and M. gear preferred —Horwood, The Lawn, Heuley.

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WANTED, Late 1908 or 1909 Twin de Luxe, also sidecar.—S., 51, Prestwick Rd., Ayr.

FRONT Cylinder, 3in. bore, piston, connecting rod, for twin Rex.—68, Raglan Rd., Smethwick.

WANTED, Twin Peugeot or J.A.P., magneto; cheap, cash.—Ebbutt, Queen's Rd., Croydon.

WANTED, immediately, 3½h.p. T.T. Triumph, 1910 model.—41, Saxe Coburg St., Leicester.

WANTED, 3½h.p. Cycle, magneto preferred; cheap, cash.—Daines, 41, Harmer St., Gravesend.

WANTED, 1909 two-speed Humber, cheap for cash.—Hy. Hadfield, 4a, Duncan St., Cankiow.

WANTED, 1909 Triumph, or good Douglas.—Box No. 4,495, *The Motor Cycle* Offices, Coventry.

WANTED, a good up-to-date second-hand tricar.—Give particulars to J. Bradley, Haltwhistle.

WANTED, Douglas or Moto-Reve twin; give £50 overstrung piano.—Clegg, postman, Rochdale.

WANTED, 3½h.p. Magneto Quadrant; full particulars; photo.—Fox, 19, Teville Rd., Worthing.

WANTED, motor cycle, good make; cheap for cash. —Low, Gregson Lane, near Preston, Lancs.

WANTED, 5-6h.p. J.A.P. or Pengeot magneto engine. —Particulars, Monson, Crown Hotel, Lowestoft.

POWERFUL Twin Magneto Cycle, two-speed preferred.—Carne, Fernbrae, Lansdowne Rd., Finchley.

GIVE 15 amp. C.A.V. and 26 by 2 unused Rich's for Unito coupling.—14, Edgington Rd., Streatham.

WANTED, second-hand flexible or castor sidecar, left side.—Armstrong, Oakdene, Ash Vale, Aldershot.

WANTED, a motor cycle, one in need of repairs not objected to.—E. Greener, 213, Marylebone Rd., W.

2h.p. Clement-Garrard, torpedo model, two-speed gear, belt.—White's, Brooks Alley, Liverpool. Royal 3782.

WANTED, sidecar, flexible, cane, left-hand, 28in. wheel, good condition.—Hills, 26, Denmark, Ashford.

WANTED, twin Rex, Bat, or V.S., 1908 or 1909 good condition. — A.B., Latchingdon, Maldon, Essex.

WANTED, good Motor Cycle; particulars, lowest cash.—Frost, 461, Mill St., Openshaw, Manchester.

ROC Conversion set or Fitall for 1909 Triumph, good condition, and cheap for cash.—A. Shaddick, Plain, Bristol.

ROYAL Wolf, B. preferred, perfect condition; lowest cash; fullest particulars.—43, Fortescue Rd., Bournemouth.

WANTED, free engine, with two (or more) speed gear to suit 3½h.p. Minerva.—E. Mason, Dorset St., Southampton.

WANTED, cylinder head of 2-cyl. 8-10h.p. Stevens engine, for cash.—Finsbury Villa, Goldsmith Rd., New Southgate.

HEAD, for M.M.C. air-cooled engine, 80mm. bore; also front forks for 1905 Rex.—Willis, Richard St., Hetton-le-Hole.

3½ to 5h.p. Sidecar Combination, magneto, two-speed. —Particulars to Gooding, 142, Sydenham Rd., Sydenham, S.E.

SIDECAR wanted, Montgomery, flexible preferred, good condition.—Glena, Ratlinghope Vicarage, Pontesbury, Shropshire.

WANTED, modern motor cycle or tricar, not earlier than 1908; must be cheap for cash.—66, Hampton Rd., Southport.

WANTED, good 3½ to 5h.p. engine, J.A.P. or Peugeot preferred; approval.—Smith, 4, Storey Sq., Barrow-in-Furness.

WANTED, 3h.p. Magneto Bike, exchange high-class new half-plate field camera, and splendid two-speed gent's cycle.—B., 2, York Villas, Chandlersford, Hants.

CPR

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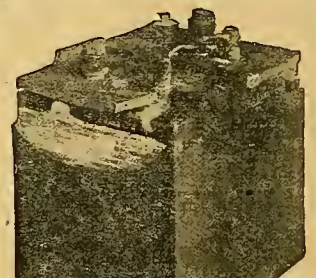

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(Dept. A.R.),
153, Fleet St., LONDON, E.C.

WANTED.

MAGNETO Motor Cycle, working order not essentia -specification, description, lowest price.—Motorist, Glendarvon St., Putney, S.W.

PHELON and Moore Motor Cycle, with or witho sidecar; state price and fullest particulars.—G ford, 55, Park St., Bristol.

WANTED, Clement-Garrard Bike, any conditio cheap for spot cash; single or twin.—Owen, C tage, Melbourne Lodge, Ealing.

LIVERPOOL.—Motor Cycles exchanged for lat models, or sold on commission.—White's City I pot, 22, Brooks Alley. Royal 3782.

5h.p. Twin Two-speed, with or without sidecar; ca or exchange 1909 Douglas as part.—Thornvil Sandford Mile Rd., Cheltenham.

SADDLES, Whittle belts, Roc two-speed, and oth gears, twin engines, and any motor stuff. — 6 Rosendale Rd., West Dulwich.

3½h.p. Two-speed Magneto Phelon-Moore, Bat, other good make, for sidecar work.—Write, W 216, Clive Rd., West Dulwich, S.E.

THE Stockport Garage Co., 37, Wellington Rd. Nort Stockport, purchase motor cycles, tricars, or ca for immediate cash. Tel.: 438.

FITALL Two-speed Gear, Montgomery or Millfa rigid or flexible sidecar, Whittle im. belt; chea —Broadhurst, Henry St., Glossop.

WANTED, Triumph, in good condition; will gi 4h.p. gas, electric light plant, and cash balanc —S. Green, 145, Manor Rd., Brockley.

WANTED, small runabout car, condition immaterial exchange 2½h.p. new Clarendon bicycle, cash a justment.—10, Dover Rd., Folkestone.

MILLS-FULFORD Castor Wheel Sidecar wanted, ne or second-hand.—Particulars and lowest cash price t Swain, 19, Queen Victoria St., London.

WANTED, small Motosacoche; exchange 6h.p. tr car, condition excellent; trial any time.—G., c Darville, 317a, King St., Hammersmith.

WANTED, 5h.p. Twin, two-speed, 1909 V.S. prefe red, perfect condition; write, stating price, a cessories, etc.—Spanton, Woking, Surrey.

MAGNETO Motor Cycle wanted, cash or part ex change new furniture, pianoforte, cycle, etc. - Evans, furnisher, Sparkhill, Birmingham.

WANTED, Lightweight, in exchange for good 2¼h.p Minerva, new condition, cash adjustment necessary.—5, Station Rd., Edgware, Middlesex.

WANTED, handle-bars, saddle, low seat-pillar, tan with space for accumulator, coil, tyres wired, 2 by 2; lever for exhaust.—Kenworthy, Walpole, Wisbech

WANTED, good make lightweight second-hand moto cycle, engine J.A.P., free, two-speed; exchang new cycles or cash; approval.—Gittoes, Cycle Stores, Ne Radnor.

WANTED, Phœnix Epicyclic Gearbox, ont of quad car, complete with all fittings, reverse pedal change lever, and quadrant.—Harfield, Almorah, Swan wick, Hants.

FOR CASH!—If you wish to realise immediately o your machine go to Nye's. Any modern magneto machine bought.—69, Leather Lane, Holborn, London Phone 6299 Holborn.

WANTED, 9h.p. Riley or Singer Tricar, in good order; give cash or 4h.p. 2-cyl. motor cycle, cost £50 only six weeks ago, in part.—Box No. 4,493, *The Motor Cycle* Offices, Coventry.

MOTOR Cycles and Tricars bought, sold, exchanged; highest prices; clients waiting; quick sales; satisfaction guaranteed.—R. M. Pullman and Bros., motor engineers and salesmen, London Rd., Norbury, London.

WANTED, 1910 Douglas, also up-to-date high powered motor cycle not earlier than 1909 state lowest price for spot cash; no dealers.—204, Worple Rd., Wimbledon.

WANTED, magneto motor cycle; exchange Phœnix 5 to 6h.p. twin, coach-built, wheel steering, two-speed tricar; no rubbish; particulars and illustration each way.—Fisher, architect, Pontypool.

WANTED, Magneto Motor Cycle, high power, low built, with sidecar; exchange 1a.p. gas engine, electric ignition, also dynamo (50v. 10a.) and cash to value.—Edward, 528, Manchester Rd., Hollinwood, Oldham.

WANTED, motor cycle, forecar, or runabout, in exchange for brindle bull dog, Royal Stone strain, 16 months old, suitable for the show bench, stud yard, or companion; approval willingly. — Hindle, 19, St. Thomas Rd., Chorley.

EXCHANGE.

3½h.p. Rex Engine for higher power, cash adjustment. —Todd, Shirley Hall, Brailsford, Derby.

LONGUEMARE, 6h.p., exchange variable pulley, or sell £1.—Young, Buchan Hill, Crawley.

WANTED, Triumph Motor Cycle; exchange Wolseley 4-seated 2-cyl. car.—R. Griffin, Kendal.

3½h.p. Motor Cycle, perfect condition; cash, or exchange coh pony.—27, Elmsdale Rd., Walthamstow.

HAMMOND Typewriter, in perfect working order; exchange for motor cycle.—C., 130, Brixton Rd., S.W.

THE MOTOR CYCLE

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ADDRESS—20, TUDOR STREET, LONDON, E.C.

MOTOR CYCLES FOR COLONIAL USE.

IN recent numbers of *The Motor Cycle* (writes an Australasian correspondent) I have read with interest articles in reference to the building of motor cycles suitable for colonial use, and as a rider with a knowledge of South Africa, New Zealand, and Australia, I should like to give you an account of some of my experiences.

At present I will refer only to Australia, where I am now located, and where my business is continually keeping me on the road in town and country, over the tarred esplanades of fashionable resorts, and along the winding and lonely bush tracks, once the happy hunting grounds of notorious bushrangers.

On the whole, the roads in and around the great cities such as Sydney and Melbourne, are good, and the many fine views to be obtained and the glorious panorama of sea and sky which is the reward of the wheelman make motor cycling a real pleasure.

However, one naturally refuses to be kept within the boundaries of more or less energetic municipalities, and a lengthy tour is arranged.

We will suppose that a run from Melbourne to Sydney is decided upon, a distance of 575 miles. For the first sixty miles to Seymour the road is good, but after that—well, here the troubles of the rider of a machine built for British conditions only commence. The road is unmade for the most part, and in the summer very deep in dust and sand, an alternative being at one's disposal of running in and out of the gum tree bush through which the road was cut in the bad old days, but this is very risky, even with the best of brakes, the path being thickly strewn with fallen trees and branches.

However, nothing daunted, you struggle on your circuitous course, considerably lengthening the journey, until you arrive at a more formidable obstruction in the guise of a dry river bed, deep in sand.

Now, my brethren of the motor cycle, unless you are riders of powerful twins and have a free engine, whereby you may get a fresh start should you get bogged, I advise you first of all to dismount and reconnoitre the position. The most fordable portion of the watercourse must be found, unless there happen to be a plank bridge which is wide enough for you to scramble across.

The trying part, however, for the motor bicycle, and particularly the spring forks, frame, wheels and rims, is the frequent occurrence of subsidences across the road, caused by rushing narrow streams in the rainy season. Riding across these gutters severely strains the whole machine, and, in fact, it is an art to manipulate it at all without dismounting.

Resuming your journey, should you successfully accomplish the first 100 miles, you will find the conditions of riding just as strenuous for practically the whole distance, until you are rewarded for your perseverance by a sight of glorious Sydney Harbour.

Although the use of motor cycles on the bush roads of Australia calls for such exceptional care on the part of the rider, there is an ever-increasing number of motor cycles appearing year by year, and they are used by all classes, both for business and pleasure; therefore it behoves the home manufacturer who wishes to keep his machine to the fore to go thoroughly into the question of strength of general construction besides reliability of running power.

MILITARY MOTOR CYCLING NOTES.

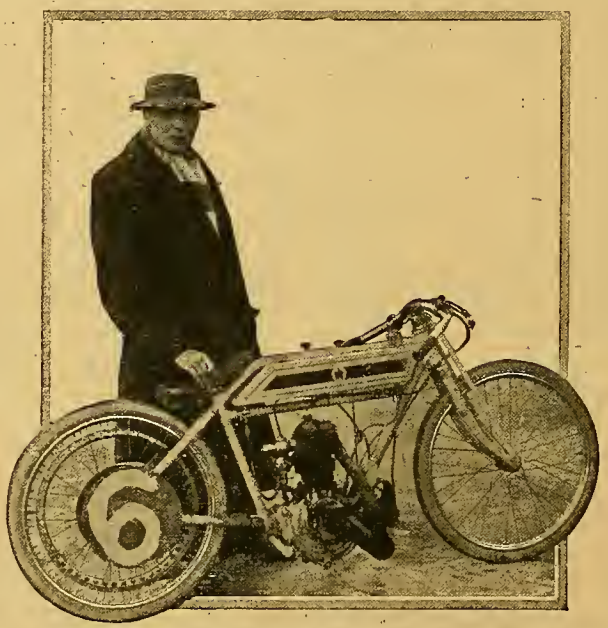
By "CELERITER."

THE ART OF DESPATCH RIDING.

I CAN hear some motor cyclists say, "The art! Why, it's as easy as skidding on greasy asphalt!" So much for ignorance; now to the facts. Of course, any motor cyclist who can read a map is able to take a message from one place to another. But that is not the sort of job a military despatch rider has to undertake. Let me take a very normal case as an example, and we will imagine we have two motor cyclists at our disposal. One, who is an old hand at the game, we will call Jones, the other Brown, a keen and enthusiastic motor cyclist, but a novice at military work. They are attached to General Snooks, commanding the 5th Cavalry Brigade, which is moving from Newbury on Wallingford, expecting to come in touch with the enemy somewhere near the Thames. Away to the right the 6th Cavalry Brigade, commanded by Col. Robinson, is moving from Basingstoke on Reading and Henley, whilst the headquarters of the Division, under the able leadership of General Smith, is moving from Basingstoke to Pangbourne.

How it should Not be Done.

The staff officer for the 5th Brigade tells our two despatch riders to keep near the general. Brown interprets this literally, and for five miles rides close at hand, overheating his engine, frightening the horses, and making himself generally unpopular. Jones, who has played this particularly unpleasant game before, does his riding in sections of half a mile at a time, waiting for the general to come up, and then going on again. By the end of five miles some officer on the staff, probably for the sake of a little peace, sends Brown back to Newbury with the laconic message, "Go back, find the 2nd Line Transport, and deliver this message, then rejoin." Off goes Brown right down the long line of squadrons, cordially cursed by everybody, instead of taking some side road. He meets lots of waggons, and in vain enquires for the 2nd Line Transport. After a good deal of wandering he eventually discovers them watering their horses in a secluded park, gives his message, and prepares to return. He has not the faintest idea where to return to save along the road to Wallingford. On his way to this town he passes all sorts of troops, but cannot find his general anywhere. He may be lucky and meet Jones, who will tell him that until noon the general has established his headquarters at the Post Office, Yattendon, in which case he will be all right; if not, he is not likely to find his general until well on in the afternoon after fruitless miles of riding and many questionings. When he arrives the staff officer says, "Where did you find the 2nd Line Transport?" The only answer he can give is, "In some park near Newbury."



O. C. Godfrey, with the actual 3½ h.p. single-cylinder Rex machine he will ride in the Tourist Trophy Race. The carburetter is an Amac with adjustable nozzle.

An Expert at Work.

Now let us turn with relief to motor cyclist Jones. All the while he has carefully noted the position of headquarters on the map. By an occasional question he has kept himself informed of the movement of the various detachments, so when he receives the order to go to the officer commanding the 23rd Hussars he knows where to look for him. He knows, for instance, that the latter reached East Ilsley at 10 a.m., he knows they were moving on Streatley, and so he can calculate exactly where he is likely to find them. He does not see the fun of riding along a narrow road, encumbered by waggons. A glance at his map shows him a better road, a mile or two further perhaps, but along which he travels at high speed without let or hindrance. Two miles short of Streatley he finds his quarry, delivers his message, and in reply to anxious questions vouchsafes the following information: "General established his headquarters at Yattendon at 9.30 a.m., sir, and will remain there until noon. The 24th Lancers are due to reach Steventon at 11 p.m. No signs of the enemy's patrols by the road I travelled." Before leaving for his return journey he enquires, "In case I have to come back to you, sir, in which direction are you moving from Streatley?"

That is the difference between the expert and the novice.

Always on the Alert.

The despatch bearer must remember that he has invariably to deal with busy men, who have no time to give him information, but are generally anxious to obtain information from him about the movement of other bodies. He must therefore, first and foremost, keep a continuous watch on the movement of all bodies of troops with whom he is likely to have to communicate. He must as far as possible familiarise himself with the names of officers commanding various units. He must keep his eyes and ears open, then he will find that his knowledge will save him very many useless miles of wandering and much valuable time.

Military Motor Cycling Notes.—

Gradually and with practice he will learn of whom to make enquiries as to the whereabouts of individuals or units. He will discover it is a waste of time to ask a cavalryman questions with regard to his own infantry and guns, that nobody except the senior officers ever has any idea where the general is to be found. There are a thousand and one hints I could give the novice on these points alone, but he would forget them at once. The only thing to impress these points on his memory is practice and experience. Then he will find them out for himself.

Intercepting Cavalry Across Country.

I recollect some four years ago at army manœuvres being sent off to try and find the Cavalry Brigade. The only address given was that they were last heard of fifty minutes ago at a spot some ten miles distant. Instead of immediately starting off to this spot and endeavouring to trace them, I asked where they had been heard of previous to that. The reply showed me that they were obviously moving east at the rate of about seven miles an hour. I accordingly rode in a direction and at a speed which I thought would intercept their course, and within forty minutes had delivered my message. Five minutes after my departure another motor cyclist was given the same errand. He rode straight away to the place where the brigade had been last heard of, and it was only owing to the fact that he happened to meet me on my return journey that he managed to deliver his message under two hours.

The motto for a despatch rider is that a pennyworth of brains will save at least a shillingsworth of petrol, not to speak of lives, temper, and time, which would be of the utmost importance in war.

A. G. Fenn, the faddist, and his Imperial Triumph which he has altered in various ways to conform to his ideals.

Captain C. Battine's Paper.

On Thursday, the 7th inst., at the A.C.U., Captain C. Battine delivered a most interesting lecture upon the uses of the motor cycle in warfare. The lecture was followed by a discussion, in which several well-known men both in the military world and in motor cycling circles took part. The result of the discussion tended to emphasise the point that to be of any use in war time the motorist must have been educated during periods of peace to the duties he would have to perform. Another point which was also made clear was the folly of forming motor cyclists into fighting units and of arming them with rifles in the fond hope of using them in the firing line.

The motor cyclist will have to make use of many things on service, but a rifle is not one of them. Pluck, endurance, intelligence, speed, and military knowledge will be his stock in trade. When these qualities fail him the possession of a rifle will not help him out of the difficulty, and at all other times he will find that weapon a useless encumbrance.

The Motor Cycle Corps.

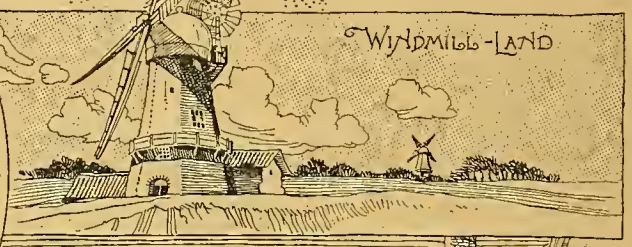
Since my appeal to the readers of *The Motor Cycle* was published quite a large number of readers have sent in their names expressing their willingness to join such a corps when formed. One and all, however, have laid stress upon the condition that the corps should be a properly authorised body conducted on military lines. I feel quite sure that all readers of this paper will sympathise with the spirit that dictates such a condition. The man who wants to pose in picturesque costume according to the fancy of his own ideas on military motor cycling has ample opportunities of doing so. There is no legal bar to his dressing himself up in any clothes he may happen to fancy and in playing at soldiers on the high roads to his heart's content, but I think most people with sense will be content to allow him to plough (?) a lonely furrow. Those of us, on the other hand, who are more seriously minded, and think more of making ourselves useful than ornamental, will refuse to join any organisation not officially sanctioned and supported by War Office funds.

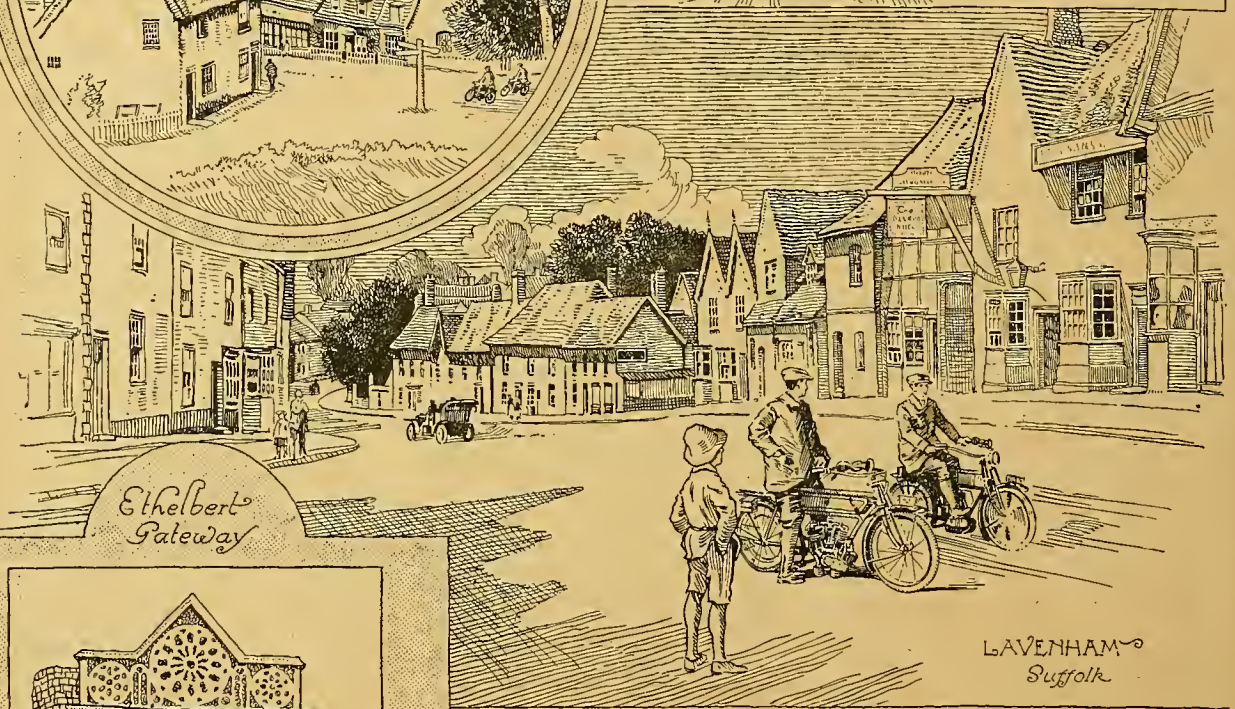
A Further Appeal to Keen Riders.

At the risk of obsessing the keen motor cyclists I would like to point out that, though the London District and the Western Command have produced quite a lot of enthusiastic volunteers for the proposed corps, Scotland, South, North, and Eastern England have not proved fruitful up to the present. I would appeal to the motor cyclists of Lincoln, Nottingham, Essex, Kent, Hampshire, Wales, and Yorkshire to send in their names as recruits for the new corps when formed, and I ask every individual man who is interested in the scheme to carry on an active recruiting propaganda amongst his motor cyclist friends and his clubmates. The only way we can get what we want from the War Office is to come forward with the scheme and the men. The scheme has already been put forward; it remains for you, readers of *The Motor Cycle*, to provide the men. We want 250 in all, and unless we can get at least this number of volunteers there is very little chance of the corps ever being started. Surely it is not very much to ask. To send a postcard to the Editor of this paper only costs a halfpenny and commits the writer to nothing. Roll up, all keen riders of the "petrol horse," and let us make a success of this corps of ours. Surely we motor cyclists can do as much to help our country as our cousins of the motor car.

WHERE TO GO AT WHITSUNTIDE

East Anglia No. 4





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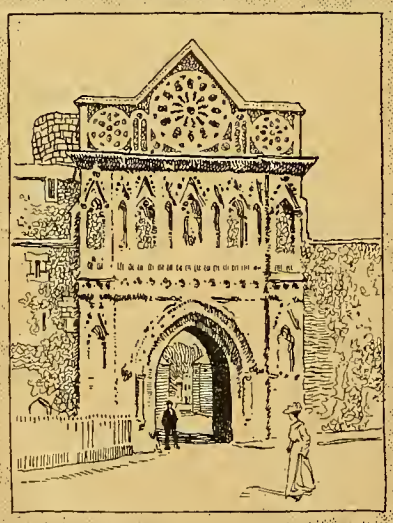
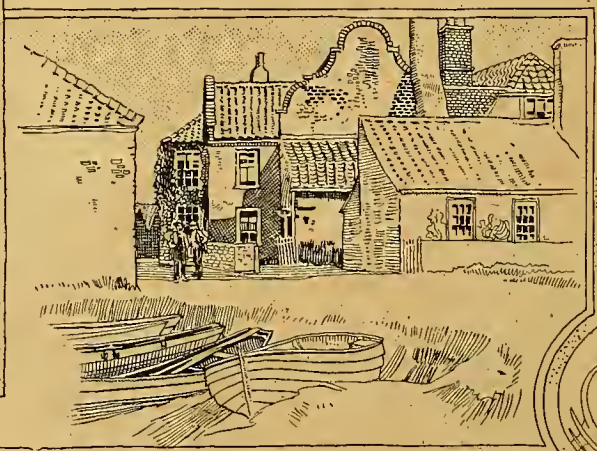


NORWICH

LAVENHAM
Suffolk



YARMOUTH

Sydney R. Jones

A Complete Stud.

Visiting an old acquaintance the other day, I found him in possession of a quite ideal stud. For dry roads and speed work he owns a nippy little T.T. racer, scaling no more than 140 lbs., and capable of a mile a minute bat on Brooklands. For ordinary comfortable long-distance work he rides a much heavier machine —a single-cylinder two-speeder, weighing 200 lbs. all on, game to climb any hill in any weather with a big kit on its carrier, finely sprung fore and aft, reliable as they make 'em. But he says he is getting too stiff and fat and old for the T.T. type of jigger. It cramps his spine, it bucks and curvets overmuch, and keeps his wrists too low. So for speed work in 1911 he looks forward to a heavy, well-sprung, high-geared 8 h.p. twin. The roadster mount sometimes tugs a sidecar, when solitude irks him. This is the sort of stud for a two-machine enthusiast, and the man who can run to a third mount should add a little 80 lbs. lightweight for completeness' sake.

A Non-stop Trial Tip.

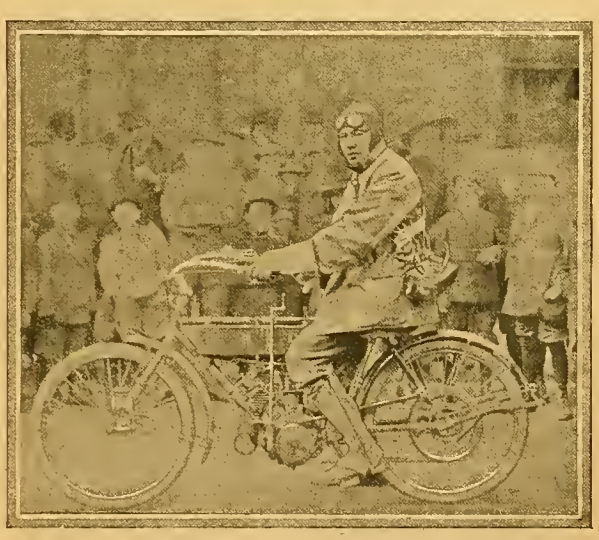
Examining the reports of sundry 1909 non-stop trials, I was interested to notice how many men had been outed by broken belts or fractured belt fasteners. The rubber belts have yet to attain as sound a joint as some of the leather belts. I always carry a leather belt with me, for use if furious rain should give my rubber a bad fit of the slips, and several seasons have elapsed since I broke or pulled out the fastener of a leather belt; as readers are aware, the joint is quite the strongest portion of several patent leather belts, whereas it is invariably the most vulnerable detail of a rubber belt. The rubber belt scores heavily with its special merits of cleanliness and absence of stretch or glazing.

Automatic Carburetters.

I mean to keep dinging away at this point, because I know how many riders botch their driving on hills, as they are too clumsy to coax the best out of their engines with the modern two-lever device. I leave it to the trade to meet the coming demand, but just let me point out that a multiple-jet carburetter can easily be designed to supply a perfect mixture at all engine speeds. Your first jet is the only one uncovered with the throttle in the starting position; it can be adjusted to supply a rich mixture for starting and very slow running. Jet No. 2 will then supply a vapour consisting almost exclusively of air to dilute No. 1's mixture for faster running at speeds from twenty to thirty-five miles per hour, and No. 3 is set to work when the throttle is swept recklessly open, and adds a complement of well-balanced mixture for packing the cylinder cram-jam full in real hard work. Such a carburetter takes in all its air through the choke tubes, possesses only the one lever which actuates the throttle, and on cars has been proved to give maximum power, maximum economy, and real automaticity. There are other designs, of course, but here is a simple, inexpensive, and foolproof alternative to the patterns we are using now. All its three jets may be instantaneously accessible from the outside without touching any other portion, and all its air supply may be filtered by a simple spring bayonet-jointed gauze cap, slipped on and off in a second. It is, however, by no means impossible to design a truly automatic and efficient single jet device.

Exhaust Whistles.

I have been using an exhaust whistle for some time past, and, while I strongly deprecate recourse to such violent and piercing alarums in traffic and populous regions, there is nothing to touch them for shifting drivers of traction engines and hooded vans out on the open road. I do not at present know of a sample which I can unreservedly recommend for use on a single-cylinder, though almost any type will work well on either a single or a twin when the engine is running really fast. At slow speeds on single-cylinder engines all the samples I have tried produce but a feeble noise. I think, however, that I can



. Voel er, (3 h.p. twin N.S.U.) a successful competitor in the New York M.C.C. Quarterly Trials on April 3rd. He climbed both the test hills easily, and finished with a perfect score, gaining a gold medal.

tell designers how to make a whistle which will be efficient on even a single-cylinder at slow speeds—it must possess a sliding reed. I examined a whistle of this type on a car engine the other day. The reed portion had three flats on its sides, and this reed slid backwards and forwards in a tube under the influence of a lever and cord. The variable orifice thus produced responded admirably at all speeds, and made quite sufficient noise when the car was barely moving on top gear with the throttle shut right off, since the closing of the reed orifices enhanced the feeble pressure of the exhaust, and made the most of it.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

How to Overhaul a Motor Cycle.

[4723.]—In regard to letter 4696, April 14th, 1910, by Dr. T. S. Watson, I should like to mention that there is no need to fit a larger valve than was previously used, after truing up, as described in the article mentioned. The actual valve seat remains exactly as it was before, only the "pocket" being turned off to give a free passage to the gases. CON-ROD.

A Tyre Tip. The Motor Cycle Corps.

[4724.]—The following hint will perhaps prove useful. On returning from a tour at Easter I had a bad burst in the front tyre, and no repairing canvas. The difficulty was overcome by putting a cloth pad inside the cover and binding a broad strap round the outside several times. I did the remaining thirty miles comfortably and without trouble.

I shall be only too pleased for you to enrol my name amongst those willing to join a Motor Cycle Corps. My machine is a 1910 Minerva 3½ h.p. H. A. POWELL.

A Carburetter Experience.

[4725.]—I have a tip that may be of use to some users of Longuemare carburetters. I was for a long time troubled with petrol streaming out of the hole in cap on float chamber at high speed. When standing it would not flood, and everything seemed to be in order. At last I formed a theory that when the petrol lifted the float high enough the plunger used for flooding carburetter caused float to tilt to one side. This caused the needle instead of sliding freely to bind, so I removed the plunger, and have had a well-behaved carburetter ever since with no other alteration. A. M. G.

Increase of Speed on Partially Raising the Exhaust Valve.

[4726.]—If Mr. Nettleship thinks he has solved the problem by stopping his lifter from doing a "jig," I am afraid he is greatly mistaken, as I find that engines with the valve lifted by the tappet are the worse offenders.

Perhaps Mr. Nettleship did not see my last letter; if not I think he will find the solution "if" he will experiment with his engine by varying the timing to suit his engine. This should stop its peculiarity for good. PONY.

[4727.]—We observe the reappearance from time to time in your columns of this hoary-headed "phenomenon" with an ingenious but generally illogical explanation proffered in each case.

May we venture with all due diffidence to point out that modern academic investigation of the above and suchlike problems has placed the solution rather beyond the realms of mere surface surmise, and for the benefit of those enthusiasts who are interested in this particular phenomenon we would append the accepted explanation as arrived at by scientific investigators. By the aid of a contrivance known as the revolving mirror the exact action of a rapidly-moving body such as an exhaust valve may be watched and ultimately studied. Its application in this case discloses a tendency of the valve to bounce on its seating, which bounce gradually increases with the cam speed until at high rates of revolution it is extended well into the induction stroke very much to the detriment of the incoming mixture.

The judiciously applied support of a Bowden operated exhaust lift acts upon this bounce like a dash pot, there being a certain degree of non-elastic "give" in the Bowden wire which to a great extent checks the bounce without actually preventing the valve closing, hence the increase of power which is evident on its application at high speeds. THE COLVILLE MOTOR WORKS.

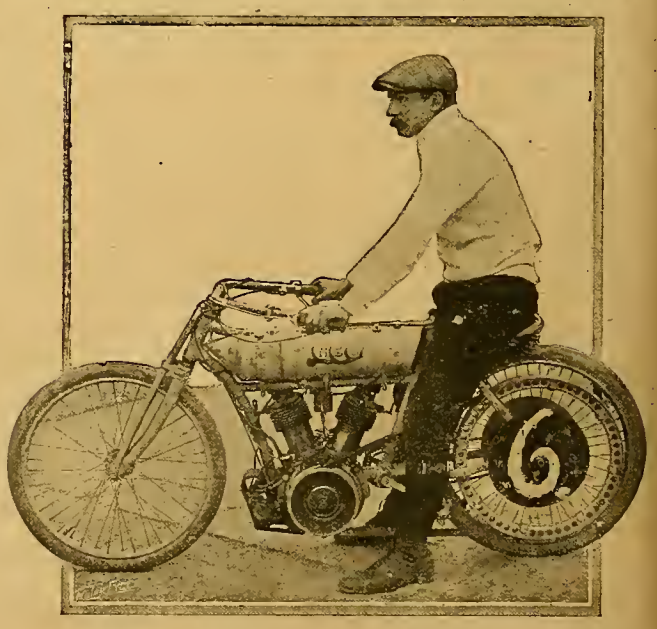
Tyre Gaiters.

[4728.]—Regarding Mr. Claridge's letter [No. 4711] in last week's issue, I personally bought two gaiters for a 2in. tyre about eighteen months ago at Gamage's, Holborn, but whether they stock them now I do not know. They were exactly what Mr. Claridge describes. They should be soaked first in water to soften. J. WILSON BUSHNELL, D.B.O.A.

[4729.]—In a comment by "Ixion" in the issue of the 7th I see he relates the sad experience of two motor cyclists who had not provided themselves with tyre gaiters. A few months back I had a somewhat similar experience. I have not means enough to carry tyre gaiters, as they run into money, and may not be used for months, and so have to lay my money out on other spares that may be required at any moment. Finding that I had a burst cover which allowed the tube when cover was repaired to blow out to size of a small football, I made my way to an ironmonger's shop and bought a few yards of chair webbing for a few pence. This I bound round the gash, starting winding at the end where the gash was farthest away from the road surface, so that the laps prevented grit from entering the gash. This wore so well that I had it on for very nearly a month, when I fitted new tyres. I may say that now I carry with me a few yards of chair webbing, being inexpensive and handy for parcels. I advise all motor cyclists to carry a yard or two of webbing; it costs 4½d., and can be bought anywhere; also a small ball of string for binding the final end. AN IRONMONGER.

Delay in Execution of Orders.

[4730.]—May I encroach upon your space to direct attention to a grievance experienced by motor cyclists, and probably car-owners also, in the matter of supplies and



A. Oberlander, a competitor in yesterday's Weybridge Handicap at Brooklands. The machine is a two-cylinder m.o.i.v. N.S.U., with bore and stroke of 80×99 mm.

A.C.U. QUARTERLY RELIABILITY TRIAL. SCENES ON THE TEST HILLS, DASHWOOD AND RECTORY (AMERSHAM).

S. R. Cooke and J. V. Robinson (2¾ h.p. Douglas motor cycles), climbing Dashwood on the outward journey to Banbury.

W. Cooper (3½ h.p. Bradbury) ascends Dashwood in a contented mood.

replacements. For example, seven weeks ago I ordered a plate-clutch in back-wheel, delivery being *guaranteed* within a fortnight from receipt of order, cash was asked for and sent, but I am still without the machine. On mentioning the matter to our club members I find that the complaint is general among us—one member, in fact, ordered a replacement as far back as November last, sent cash, but is still without the goods, notwithstanding his repeated applications. The practice appears to be, for some manufacturer to solicit orders by advertisement through your valued medium, or otherwise, then on receipt of order to send *pro forma* invoice, receive cash, and the customer may wait until sick and weary for the goods, and in the meantime be debarred from his pastime. This method of doing business is not restricted to small firms, but is practised by some firms whose reputation leads one to expect different treatment.

The motor cycling authorities assist their members to some extent in meeting the legal persecution to which they are subjected, and I think it would be an advantage if some association were found whereby, on the payment of a nominal sum, members could invoke assistance in these cases.

Individually, we cannot do much but suffer in patience, though collectively such pressure could be brought to bear as would put an end to a state of affairs peculiar, I hope, to the motor business. DISGUSTED.

A Suggested Motor Cycle Museum.

[4371.]—I am writing to ask if some attempt cannot be made to collect some of the ancient motor cycles, which are now so much scrap iron, but which in a few years' time will probably be of great interest. For instance, I bought the other day a 2 h.p. gear-driven Singer motor cycle in perfect working order for £1. A friend of mine has just bought for 30s. an 8 h.p. (R.A.C. rating) four-cylinder water-cooled Holden motor cycle. I saw advertised in the miscellaneous columns a few weeks ago a front-driven Werner for £4 15s., and a four-cylinder Binks is periodically advertised for sale in *The Motor Cycle*. No doubt there are various other interesting machines lying about rusty and disused in different garages. With reference to the Singer a few words may be of interest. When I received it a week ago the engine and magneto (low tension) were covered in rust, but it started up at practically the first turn, and it easily does 20 m.p.h. on the level and climbs well for its power. So far it has done about thirty miles, repairs having cost 9d. I think this speaks volumes for the workmanship put into the machine, as I believe it dates from 1903, and probably had not been used for two or three years until I tried it. The four-cylinder Holden hops along well on the level, but weeks of patient labour have so far failed to make more than three cylinders work together. H. E. RENDALL.

The second bend on Rectory Hill, Amersham.

A. C. Robbins (3½ h.p. two-speed Humber) commencing the ascent of Rectory, the second test hill.

A Puzzle or a Poser?

[4732.]—With reference to the recent correspondence in *The Motor Cycle re* petrol spraying from the extra air inlet of the carburetter, I do not think the design of either the ordinary motor cycle engine or carburetter can be blamed, or why should some riders have so much more to complain of than others?

On my own machine (a 3½ h.p. Bradbury), although the consumption is fairly high (eighty miles per gallon with a No. 30 jet), I can detect no trace of blow-back of petrol. I have the valves set in a normal manner, viz., exhaust opens threequarters of an inch from bottom of firing stroke, closes at top of exhaust stroke, and inlet opens as exhaust closes. The extra air inlet has been increased in area about fifty per cent.

On a friend's machine, twin a.o.v., a similar carburetter (1909 B. and B.) is fitted, and engine wastes apparently about fifty per cent. of the fuel through blow-back. Personally, I should be inclined to blame the valves for the trouble on any standard machine.

J. C. BENNETT MITCHELL.

The M.C.C. Inter-Team Trial.

[4733.]—I am afraid that in reviewing the rules of the 1910 competition you did not give those rules the same amount of consideration to which they were subjected when being reviewed by my committee, for I feel sure that you would not then have suggested the improvements mentioned in last week's issue of *The Motor Cycle*. In the first place, although it may be, and probably is, desirable that pedalling should be prohibited, the fact is that it is impossible unless the whole of the twenty-five mile circuit were lined with officials in view of each other to see that this rule should be enforced.

I have a recollection of quite a recent competition where the judges had to refrain from awarding marks under a certain heading for the only reason that the awarding of such marks was not practical. It is not the right thing to have to worry out definitions of rules after a competition is finished and the competitors look for results, and for this reason, if for no other, it was decided to leave the rules as regards pedalling just as they have served for the previous successful competitions. The fact that so far only one team has succeeded in obtaining a full score justifies the opinion that even with pedalling it is not child's play to get a team of six riders to make a clean one hundred miles non-stop.

With regard to the wearing of a distinctive coloured armlet by the members of each team, last year we had eighteen teams, and to me it appears somewhat difficult to select eighteen different colours, each sufficiently distinct to be easily recognised.

Our method of giving each team a different set of numbers, so that one team shall be all 20's, one all 30's, another all 40's, and so on appears to have worked well so far.

My committee has now had a good deal of experience in running competitions. I believe that I am not going too far in saying that the organisation of M.C.C. events bears a good name, and we are all great believers in leaving well alone.

I do not wish you to think that we hold ourselves above criticism; nothing is so good that it will not bear looking into; what should, however, be first considered when suggesting new rules is the possibility of carrying them out.

J. VAN HOOYDONK, Trials Hon. Sec.

[We should like to point out that, when we suggested that pedalling should be barred, we anticipated that pedalling chains would be removed. By ringing the changes on colour and design we think it would be possible to select eighteen or more suitable combinations.—ED.]

Lightweights v. Heavyweights.

[4734.]—*Re* letter No. 4710 in your issue of April 14th, in which Dr. Patterson relates his experiences with a 1909 Douglas lightweight, I think that if the Doctor would give slightly fuller details of the running expenses it would very materially enhance the already high value of the letter.

I may say that though not the fortunate possessor of one of these splendid machines, I have nothing but unbounded admiration and enthusiasm for their capabilities. They appear to me to stand quite in a class by themselves, combining as they do all the really desirable features of the standard heavyweight, together with certain unique features only found in lightweights.

I would suggest that such particulars should be under the following headings: (1.) Belts used (make and distance travelled). (2.) Tyres used (make and distance travelled). (3.) Replacements, such as plugs, valves, bushes, etc. (4.) Days out of commission through breakdowns of any kind. (5.) Whether a complete overhaul is included in the year's running. I submit that if these be given they would form a really solid basis for comparison, and would be the means of gathering into the motor cycling fold many would-be enthusiasts who now remain outside. LB 2727.

A. R. Abbott (8 h.p. Matchless and sidecar) leaving the Red Lion, Banbury.

LAST WEEK'S QUARTERLY TRIALS.

F. Greaves (2¼ h.p. Royal Enfield) making a good ascent of Rectory Hill, Amersham.

Homeward Bound. Competitors nearing Uxbridge.

Motor Cycle Tyres.

[4735.]—In reference to the letter of J. F. Briggs in the issue of March 31st, I am afraid he is one of very many who have been suffering with tyre troubles of the same nature he has so aptly described, and, as he observes, most frequently found when starting for a spin. There is no doubt that security bolts are a prolific source of puncture trouble, and I am also of J. F. B.'s opinion that the butt-ended tubes supplied with the machines mentioned (P. and M.) are too long, causing kinks. These kinks chafe and eventually puncture.

EXPERIENCES WANTED.

"H. J. K." (Salisbury) would be glad of readers' experiences with the N.S.U. engine shaft gear on a Triumph.

"F. A." (Kettering) would be glad to have readers' experiences of the Lowen sidecar.

"B. R. B." (Hants). The Roc gear, particularly with regard to tracking of front and rear wheels and braking power.

A.C.U. Quarterly Trial.

Uxbridge to Banbury & Back.

Wm. Bennison near the top of Dashwood on his A.C. sociable. The motor bicycles lining the roadside belong to interested spectators.

ON Wednesday, the 20th inst., the Auto Cycle Union Spring Quarterly Trial took place, starting from Uxbridge at 9 a.m., and extending over the usual course. Despite the recent suggestions to curtail trials and competitions, the entries numbered seventy-three, and of these the majority came from the trade. The fact of the matter is that the motor cycle trade is highly appreciative of the Quarterly Trials, as they serve effectually to bring new machines before the public notice, while the regulations imposed which enable marks to be awarded for brakes, hill-climbing, general convenience, etc., all tend to improve the modern motor bicycle and bring it still nearer perfection.

There was barely room to move in the Chequers Hotel yard just before the start, as it was full of machines and competitors rushing to find Straight and Beasley, and from them to get programmes and route cards, while the judges, Messrs. Brooker, Cove, and Sharp, dodged hither and thither among the forest of motor bicycles, examining each one with scrutinous care. Several of the mounts possessed interesting and novel features. H. Roberts's P. and M. was provided with an alarm bell worked by the right-hand inverted lever on the handle-bar. Two ladies' machines took part—one Miss Berend's Moto-Rêve and the other an Omega ridden by F. A. James. The neat appearance of the new Humbers (ridden by the company's experts of long experience, Crundall and Yates), the Brough, and the Arno, rendered these machines especially conspicuous. The latest Brown Midget Bicar was also there, with an expanding pulley gear worked by a side lever; with this gear the slack in the belt is taken up by pressing down on the footboard, which pushes back the rear wheel, and when the correct tension is found it is locked by turning a screw on the top tube. Other interesting machines were the 3 h.p. Wanderer, with under-geared pulley and horizontally-cast radiating fins on the front cylinder; the 3½ h.p. Premier, fitted with auxiliary exhaust release; the three James models; and the two new Enfield lightweights.

Immediately before the start. Competitors lined up in pairs outside the Chequers Hotel, Uxbridge.

Just after 9 a.m. Miss Berend, the dainty lady competitor, led the throng, the others following in quick succession. Miss Hind was present at the start, and regretted she could not compete, as her new machine had not been delivered. Only three of the entrants failed to put in an appearance. The weather was dull, but as the glass was high there was every

A.C.U. Quarterly Trial.—

prospect of it being fine, and as it had rained early in the morning the road surface was just of that consistency to be firm and dustless. Greasy patches—fortunately few and far between—were encountered on the long hill descending into Loudwater, at Stokenchurch and Aston Rowant.

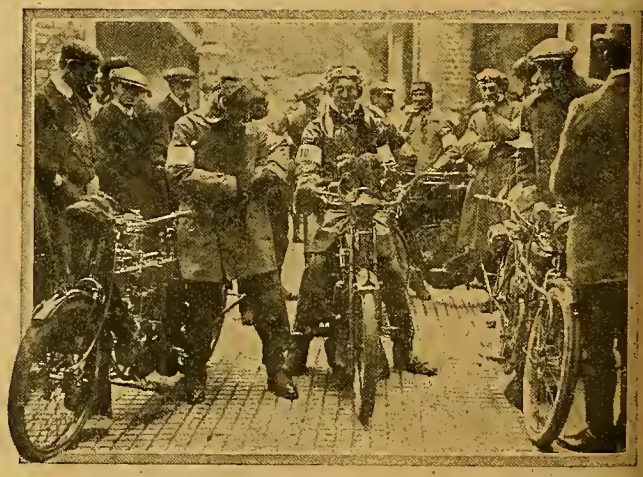
On Dashwood.

On Dashwood Hill, where the usual crowd of spectators had congregated, the surface, especially on the near side, was good; there was no wind, and next to no traffic, so that the hill-climbing conditions were ideal. Though things would have looked more cheerful had the sun come out, the roads would have dried too quickly and would have become dusty. All those who reached the foot of Dashwood Hill made satisfactory ascents, and the following are a few remarks made from careful observations on the hill.

The first competitor to come in sight was Miss Berend, whose little machine brought her up at a smart pace, though she used the pedals pretty vigorously. What appeared to be especially good ascents were made by W. Cooper (3½ h.p. Bradbury), F. Smith (5-7 h.p. Clyno), E. D. Dickson (7 h.p. Indian), A. V. Deacock (3 h.p. Wanderer, which came up in splendid form), G. E. Stanley (3½ h.p. Premier), C. J. Fox (7-8 h.p. Bat), F. W. Applebee (5 h.p. Rex), A. T. Stanton (3½ h.p. Bradbury), F. Savory (3¾ h.p. Premier), and Marshall and Newsome on Triumphs, while Islip on an Enfield made a particularly fine ascent for a lightweight. The remainder, except where otherwise stated, appeared to climb the hill in excellent form: E. A. Colliver (3½ h.p. P. and M., low gear), W. Pratt (3½ h.p. P. and M., top gear), H. Robert (3½ h.p. P. and M., low gear), B. A. Hill (3½ h.p. Kerry, first time a 1910 model has appeared in public competition—quite a good ascent), W. A. Lockwood (3½ h.p. P. and M.), G. L. Fletcher (2¾ h.p. Douglas), P. Phillips (2¾ h.p. Douglas), A. R. Abbott (8 h.p. Matchless and sidecar, Nala gear), E. H. Lees (5 h.p. Indian), C. K. Wigram (5 h.p. Rex, came up steadily), F. Philipp (3½ h.p. Scott), R. Samson (3½ h.p. Reg. Samson), M. Geiger (7-9 h.p. V.S. and sidecar), G. T. Gray (3 h.p. N.S.U., low gear), P. M. Pridmore (3½ h.p. Triumph), F. H. Stevenson (3½ h.p. Triumph), C. J. Janssen (2¾ h.p. Moto-Rêve, pedalled, but came up well), A. Forbes (5-6 h.p. A.C.), V. Underhill (3½ h.p. L.M.C.), H. A. Cooper (2¾ h.p. Douglas), A. C. Robbins (3½ h.p. Humber, came up on top gear, but had to change down actually on the crest), F. A. James (1½ h.p. Omega, pedalled, but came up well), E. Leighton (3½ h.p. Triumph), J. S. Holroyd (1½ h.p. Motosacoche, pedalled lightly), H. Lord (3½ h.p. Excelsior), A. L. Barker (3½ h.p. Clyde), W. Hewitt, jun. (3½ h.p. Excelsior), A. E. Wills (3½ h.p. Arno), J. F. Slaughter (3½ h.p. Ariel), G. N. Higgs (5-6 h.p. A.C.), W. Keep (4½ h.p. Midget Bicar), W. G. Ayling (3½ h.p. Midget Bicar), S. R. Cooke (2¾ h.p. Douglas), J. V. Robinson (2¾ h.p. Douglas), R. Measures (3½ h.p. Triumph), F. Savory (3½ h.p. Premier), C. Patteson (1½ h.p. Moto-Rêve, pedalled), W. Bennison (5-6 h.p. A.C. Sociable), J. F. Crundall (3½ h.p. Humber), B. Yates (3½ h.p.

Afternoon tea at Amersham, provided by "The Motor Cycle," was very popular. The competitors were anxious to be snapped drinking continued success to this journal.

Leaving Banbury on the return journey, F. Philipp (two-stroke Scott) leading. The famous Banbury Cross may be seen in the background.



Preparing to leave Banbury after the luncheon stop. H. Robert (P. & M.), C. K. Wigram (5 h.p. Rex), and E. D. Dickson (7 h.p. Indian).

A.C.U. Quarterly Trial.—

Humber), F. E. Edmonds (3½ h.p. Humber), G. Allan (3½ h.p. James), A. D. Arter (3½ h.p. James), G. Brough (3½ h.p. Brough), C. Hill (5-6 h.p. A.C. Sociable), F. J. Ellis (3½ h.p. Matchless), S. C. Perryman (3½ h.p. Ariel), A. L. Lamb (3½ h.p. Humber), F. A. Applebee (5 h.p. Rex), S. A. M. Witham (3½ h.p. Triumph), J. Portwine (5-6 h.p. A.C.), J. Greaves (2½ h.p. Enfield), H. Cox (2¾ h.p. Douglas), and H. C. Griffen (3½ h.p. Griffen-Simplex Premier).

Clear of Aston Rowant the going was excellent, though the early part of the Wheatly-Islip loop road was somewhat bumpy. All through Oxfordshire the police behaved magnificently; all cross-roads were watched by constables or sergeants, and here and there an inspector was seen on his bicycle inspecting his men at their posts. Only one man — a non-competitor — was stopped by the police, and that was for driving too fast in Stokenchurch. Following in the tail of the procession, very few machines were seen in trouble. A. D. Arter (3½ h.p. James) was seen suffering from a burst tyre; Miss Berend had one stop, apparently through overheating; and Yates had one stop for plug trouble.

Miss L. Berend (2 h.p. Moto-Reve) and G. E. Brough (3½ h.p. Brough) at Uxbridge.

The Banbury Control.

When we arrived in Banbury, the first person we met was the Mayor of that town, who made full enquiries about the day's trials, particularly with regard to the way in which the marks were allotted, etc. It is worthy of note that, although the trials' luncheon stop has been at Banbury ever since the inauguration of the Quarterlies, no untoward incident has ever occurred, and the police have, as far as we know, been thoroughly satisfied with the conduct of the whole of the competitors. The garage at the Red Lion presented its usual animated scene, and the number of spectators and interested riders was larger than usual.

At 12.13 p.m. the competitors began to arrive. W. Pratt (3½ h.p. P. and M.) led the way, followed by W. Cooper (3½ h.p. Bradbury) and Miss L. Berend (Moto-Rêvé). Miss Berend did not appear in the slightest degree distressed with her long ride. Between 12.13 and 12.30 nearly all the competitors had arrived, and very soon a telegram was received from Mr. Straight, advising the officials that sixty-nine competitors had left Dashwood Hill. We hardly expected, despite the reliability of the modern motor cycle, that everyone would turn up at Banbury within the schedule time, but by 12.53 the whole of the sixty-nine had reported themselves, and a quarter of an hour later the officials began dispatching the early arrivals on their return journey to Uxbridge, *viâ* Bicester and Amersham. One unfortunate competitor, V. Underhill (3½ h.p. L.M.C.), broke his belt fastener within a few yards of the garage doors and returned to report and repair. This was the only incident of any note that took place during the luncheon control, and before 2 p.m. the party of willing checkers were seated at luncheon.

On the return journey, Stanton was seen at the foot of the hill out of Banbury with plug troubles, while Applebee, sen., had a stop from a similar reason. The road to Aynho was pretty good, but a fair quantity of mud was met with under the trees. The course was well marked—in fact, better than usual—and P. W. Bischoff rendered valuable assistance in this direction. Messrs. A. H. Hunter, — Maybury, F. A. Hardy, and A. E. Woodman rendered the organisers great assistance by following the men on motor bicycles. On Rectory Hill the surface was in very good order, and what wind there was favoured the competitors. As on Dashwood, Mr. A. V. Ebblewhite took the times at the start and Mr. Straight took the times at the finish. Tea was provided for the men by *The Motor Cycle* at the foot of the hill, which was much appreciated.

Excellent ascents were made by W. Cooper (3½ h.p. Bradbury), E. D. Dickson (7 h.p. Indian), G. E. Stanley (3½ h.p. Premier), G. L. Fletcher (2¾ h.p. Douglas), F. Philipp (3½ h.p. Scott), C. J. Fox (7-8 h.p. Bat), A. V. Deacock (3 h.p. Wanderer), W. Hewitt (3½ h.p. Excelsior), J. Marshall (3½ h.p. Triumph), F. A. Applebee (5 h.p. Rex), J. F. Slaughter (3½ h.p. Ariel), W. Newsome (3½ h.p. Triumph), — Islip (2½ h.p. Enfield), and G. N. Higgs (5-6 h.p. A.C. Sociable). Satisfactory ascents were made by F. W. Applebee (5 h.p. Rex), W. Pratt (3½ h.p. P. and M.), H. Robert (3½ h.p. P. and M.), E. H. Lees (5 h.p. Indian), B. A. Hill (3½ h.p. Kerry), E. A. Colliver (2½ h.p. P. and M.), A. R. Abbott (8 h.p. Matchless and sidecar), F. Smith (5-7 h.p. Clyno), C. K. Wigram (5 h.p. Rex), P. Phillips (2¾ h.p. Douglas, pedalled, but came up well), W. A. Lockwood (3½ h.p. P. and M.), M. Geiger (7-9 h.p. V.S. and sidecar—engine missing, but came up well), R. Samson (3½ h.p. Reg-Samson), G. T. Gray (3 h.p. N.S.U.), E. Leighton (3½ h.p. Triumph), F. A. James (1½ h.p. Omega, pedalled), A. C. Robbins (3½ h.p. Humber), H. A. Cooper (2¾ h.p. Douglas), F. W. Phillips (1½ h.p. Omega, clutch slipping), A. Forbes (5-6 h.p. A.C.), G. E. Brough (3½ h.p. Brough), P. M. Pridmore (3½ h.p.

A.C.U. Quarterly Trial.—

Triumph), F. H. Stevenson (3½ h.p. Triumph), C. Cross (3½ h.p. L.M.C.), J. V. Robinson (2¾ h.p. Douglas, pedalled), J. S. Holroyd (1½ h.p. Moto-sacoche), S. R. Cooke (2¾ h.p. Douglas, pedalled), H. Lord (3½ h.p. Excelsior), J. F. Crundall (3½ h.p. Humber, top speed), F. E. Edmonds (3½ h.p. Humber), R. Measures (3½ h.p. Triumph), C. Patteson (1½ h.p. Moto-Rêve), W. Keep (4½ h.p. Midget Bicar), B. Yates (3½ h.p. Humber), A. L. Barker (3½ h.p. Clyde), J. Portwine (5-6 h.p. A.C.), F. J. Ellis (3½ h.p. Matchless, pedalled), V. Underhill (3½ h.p. L.M.C.), B. Jones (3¾ h.p. twin Premier), F. Savory (3½ h.p. Premier), G. Allen (3½ h.p. James), S. C. Perryman (3½ h.p. Ariel), S. A. M. Witham (3½ h.p. Triumph), A. T. Stanton (3½ h.p. Bradbury), C. Hill (5-6 h.p. A.C.), — Greaves (2½ h.p. Enfield, pedalled), A. L. Lamb (3½ h.p. Humber, impeded), C. J. Janssen (2¾ h.p. Moto-Rêve, misfiring), A. E. Wills (3½ h.p. Arno), W. G. Ayling (3½ h.p. Midget Bicar, dismounted), W. Bennison (5-6 h.p. A.C., shed his passenger), H. C. Griffen (3½ h.p. Griffen-Simplex-Premier and sidecar), and H. Cox (2¾ h.p. Douglas, plug trouble, arrived too late to be timed). C. Patteson (1½ h.p. Moto-Rêve) had trouble close to Uxbridge; he dismantled nearly everything on his engine, including the timing gear, reassembled the parts, and finished the journey without finding the cause of the trouble.

Of the seventy-three entries, those who did not start were J. G. T. Frith, H. S. Selves, and R. G. Mundy; while of the seventy starters only one failed to complete the course—D. R. Clarke (3½ h.p. James), who gave up before reaching Dashwood. All the passenger machines which started finished. The above information is unofficial.

Preliminary List of Non-stop Runs.

The following competitors report finishing the journey without trouble, but this result must not be regarded as official. The official awards will only be made public after the A.C.U. Committee has met to-morrow evening and passed the judges' report.

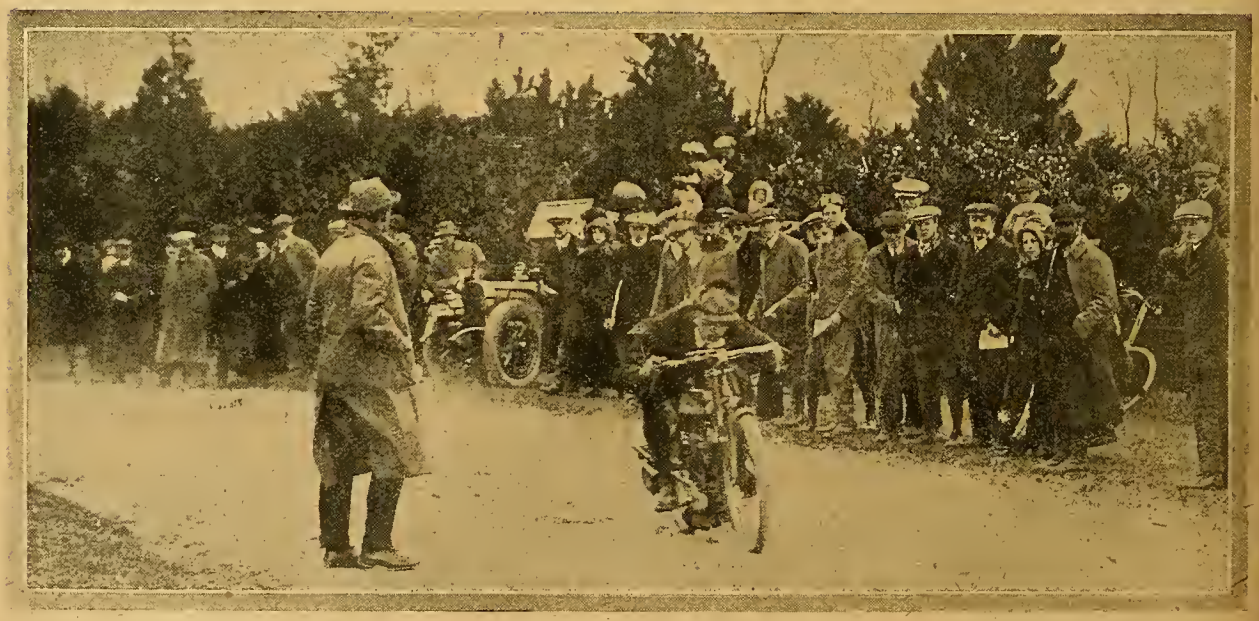
W. Cooper (3½ Bradbury).
W. Pratt (3½ P. and M.).
E. A. Colliver (2½ P. and M.).
H. Robert (3½ P. and M.).
F. Smith (5-7 Clyno).
B. A. Hill (3½ Kerry-Abingdon).
W. A. Lockwood (3½ P. and M.).
F. Philipp (3½ Scott).
R. Samson (3½ Reg. Samson).
G. L. Fletcher (2¾ Douglas).
P. M. Pridmore (3½ Triumph).
F. H. Stevenson (3½ Triumph).
C. J. Fox (7-8 Bat).
G. T. Gray (3 N.S.U.).
A. C. Robbins (3½ two-speed Humber).
H. A. Cooper (2¾ Douglas).
A. V. Deacock (3 Wanderer).
F. A. James (1½ Omega).
F. W. Phillips (1½ Omega).
A. L. Barker (3½ Clyde).
B. Jones (3¾ Premier).
F. Savory (3½ Premier).
J. S. Holroyd (1¼ Moto-sacoche).
H. Lord (3½ Excelsior).
J. F. Slaughter (3½ Ariel).—
S. R. Cooke (2¾ Douglas).
R. Measures (3½ Triumph).
J. V. Robinson (2¾ Douglas).
E. Leighton (3½ Triumph).
C. Cross (3½ L.M.C.).
J. F. Crundall (3½ Humber).
F. E. Edmonds (3½ Humber).
G. Allen (3½ James).
J. Marshall (3½ Triumph).
G. E. Brough (3½ Brough).
F. J. Ellis (3½ Matchless).
S. C. Perryman (3½ Ariel).
A. L. Lamb (3½ Humber).
F. A. Applebee (5 Rex).
S. A. M. Witham (3½ Trinmph).
—. Islip (2½ Enfield).
A. Forbes (5-6 A.C. tricar).

PASSENGER CLASS.

G. N. Higgs (5-6 A.C. tricar).
A. Forbes (5-6 A.C. tricar).
C. Hill (5-6 A.C. tricar).

Mr. A. G. Reynolds, who was unable to follow the whole trial, did excellent work in marshalling the machines on their arrival at the end of the day. Each competitor as he came in had to place his machine in its proper numerical position, so that the judges were enabled to check the arrivals and to carry out their work of inspection with ease.

HERTS. COUNTY A.C. HILL-CLIMB AT ASTON (see opposite page).



J. P. Le Grand (5 h.p. Rex) at speed in the All-comers' Class. Crowds of spectators lined the roadside almost the whole length of the hill.

HERTS. COUNTY A.C. MEMBERS' HILL-CLIMB.

At the start—W. S. Stafford riding a 5 h.p. Kerry in the class for machines manufactured during or prior to 1907.

ON Saturday last the Herts County Automobile Club carried out its members' hill-climbing competition on Aston Hill, near Tring, a venue which is closely identified with the promoting club, as it has for some years past held, in addition to its members' events, open competitions for both motor cycles and cars. The hill, which has more than an average gradient, is nearly a mile in length, and the steepest portion is encountered soon after the start. The surface on Saturday was in excellent condition. The weather was dull and cold, and although at times it looked very threatening only a slight shower fell while the event was in progress. A very good entry had been received, and this would probably have been larger, but the committee of the club refused to elect a number of candidates who had applied for membership apparently for the special purpose of taking part in the competition. Unfortunately, just before the conclusion of the motor cycle events, W. A. Jacobs, one of the competitors in Class 5, had the misfortune to fall when travelling at a great speed, the cause of the accident being due to his goggles dropping from his cap across his face, and in removing them he lost control of his steering. Fortunately he did not sustain any serious injuries, although he was rather badly cut about the face by the glass from the goggles.

In order to encourage the owners of old machines who are apt to think they do not get a fair chance when competing in the same classes with riders of more up-to-date machines, the committee provided a class for motor cycles manufactured during or prior to 1907, but apparently there are not many old machines in the club, for it only attracted three entrants.

The weighing of the machines having been carried out expeditiously at Boxmoor Station, a start was made with commendable promptitude at the advertised time, the competitors being despatched at intervals by Mr. T. H. Woollen.

The following are the results of the various classes:

CLASS 1.—For bicycles manufactured in 1907 or previous years. Open only to members who have not previously won a prize in a hill-climbing competition. Pedalling allowed.

	Rider and machine.	Fig. of merit.	Difference in time.
1.	H. Karslake (3½ Dreadnought)	126	0
2.	W. S. Stafford (5 Kerry)	172	4s.

The "old crocks," as they were called by the spectators, made a very creditable show, but the riders naturally came in for a great deal of chaffing from their friends.

CLASS 2.—For single-cylinder bicycles with fixed gears.

1.	W. Cooper (3½ Bradbury)	88	0
2.	C. C. Cooke (3½ Triumph)	100	11⅘s.
3.	Miles Brunton (3½ Triumph)	101	12⅖s.
4.	W. A. Jacobs (3½ Rex)	102	5⅖s.
5.	F. White (3½ Rex)	121	19⅕s.
6.	E. Gwynne (3½ Triumph)	124	24⅘s.
7.	A. H. Colliver (3½ Triumph)	127	28⅘s.

Cooper climbed the hill in splendid style, as also did Jacobs, and special mention should be made of Hon. Sec. Cooke, who made an excellent ascent.

CLASS 3.—For multi-cylinder bicycles with fixed gears.

1.	A. V. Deacock (3 Wanderer)	107	28½s.
2.	C. M. Down (5 Indian)	114	6s.
3.	J. P. Le Grand (5 Rex)	123	0
4.	F. A. Hardy (5 V.S.)	124	21s.
5.	W. H. Wells (5 Indian)	140	28⅗s.
6.	E. Gwynne (7 V.S.)	147	12s.
7.	G. Rowden (7-8 Bat)	161	7⅖s.
8.	W. S. Stafford (5 Kerry)	172	38⅘s.

It was quite apparent when Le Grand hove in sight that his was a good performance; in fact, it was the fastest of the day so far.

CLASS 4.—For bicycles with variable gears.

1.	E. A. Colliver (2½ P. and M.)	93	25⅘s.
2.	H. Karslake (3½ Dreadnought)	126	23⅘s.
3.	F. A. Hardy (5 V.S.)	127	0
4.	B. Marians (3½ P. and M.)	133	20⅕s.
5.	W. Pratt (3½ P. and M.)	156	33⅗s.
6.	R. G. Goslett (3½ P. and M.)	167	52⅖s.
7.	F. J. Beard (3½ Scott)	272	87s.

Beard's machine could not have been going at all well, for he made a very poor show, and nearly stopped. The low-powered P. and M. took the hill in fine style.

Classes 1 to 4 were only open to standard touring machines, and the results were decided on the A.C.U. formula.

CLASS 5.—For any motor bicycle, fastest time to win.

The results of Class 5 are not yet available.

The following are the officials, who worked hard to make this event the success it undoubtedly was, and they are to be congratulated upon the excellence of the general arrangements: Judge, Lord Herbert Scott, D.S.O.; clerks of the course, Messrs. S. Saker, F. J. Jenkins, F. G. Carter, and R. G. Booth; marshals, Messrs. F. M. Carson and J. Jaggard; clerk of the scales, Mr. A. F. Petch; timekeepers, Messrs. T. H. Woollen and C. Wheeler; hon. secretary, Mr. C. C. Cooke.

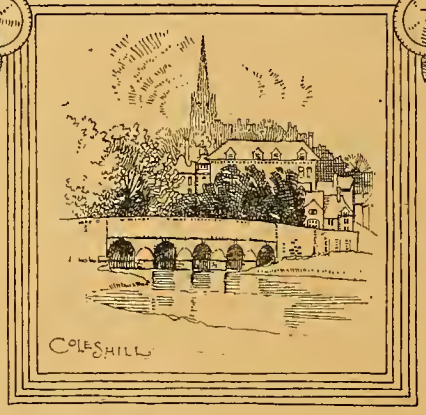
In our last issue in the description of the B.M.C.R.C. second members' meeting, we gave F. A. Applebee's time and speed in the Record Time Trials incorrectly. Applebee rode a standard Rex 3½ h.p. single-cylinder 83 by 89 mm. 482 cc., and covered the flying mile at a speed of 60.7 miles per hour. Applebee's position in Class C should therefore have been first instead of seventh, as he tied with another competitor who accomplished the same speed but on a machine with slightly greater cylinder capacity. We much regret the error, which was of a purely clerical character.

CURRENT CHAT

Time to Light Lamps

(GREENWICH).

April	28	..	8 16	p.m.
,,	30	..	8.19	,,
May	2	..	8.22	,,
,,	4	..	8.25	,,



Special Features

A.C.U. SPRING QUARTERLY TRIALS (FULLY DESCRIBED AND ILLUSTRATED).
MILITARY MOTOR CYCLING NOTES: THE ART OF DESPATCH RIDING.
HERTS COUNTY A.C. HILL-CLIMB AND OTHER CLUB EVENTS.

The T.T. Fund.

Further contributions to this deserving fund are: Price's Patent Candle Co., Ltd., £5 5s.; A. J. Sproston, 10s.; W. Heaton, 2s. 6d.; Triumph Cycle Co., Ltd., £10 10s.; Jebron (J. E. Brown per *The Motor Cycle*), £1.

Tourist Trophy Entries.

Entries for the Tourist Trophy Race received since our last issue went to press are: J. Gibson (3½ h.p. Trump-J.A.P.), D. E. Rea (3½ h.p. Mors), Premier Cycle Co., Ltd. (two 3½ h.p. Premiers and one 5 h.p. twin Premier, riders G. E. Stanley, F. Savory, and B. Vickers Jones respectively), Zenith Motors, Ltd. (two Zenith Graduas), J. R. Woodward (5 h.p. Rex), Components, Ltd. (two 3½ h.p. Ariels), W. G. McMinnies (3½ h.p. Triumph), F. W. Dayrell (5 h.p. Bat-J.A.P.) The entry of F. Geddes has been withdrawn. The complete list now totals sixty-one, and the A.C.U. reminds competitors that it reserves the right of refusing or limiting further entries.

An Object Lesson.

Mr. P. W. Bischoff, who was recently stopped on the Embankment for exceeding the speed limit, speaks in warm terms of the courteous treatment he received from Sergt. Thomas, who was in charge of the control. The measured distance of 220 yards was actually 225 yards. Further to eliminate any possibility of error, any discrepancy between the watches is added to the time, and no prosecution follows unless the speed then works out at over twenty-three miles an hour. Mr. Curtiss Bennett, at Bow Street, recognised that the offence was purely technical, and imposed a fine of 22s., including costs. Such impartiality is a notable object lesson to the procedure of certain other benches.

F. J. Beard on a 3½ h.p. Two-stroke Scott in the Herts County A.C. Members' Hill-climb at Aston last Saturday. (See previous page.)

Open Hill-climb in Scotland.

An open hill-climbing contest is being arranged by the Glasgow Motor Cycle Club for Saturday, the 7th prox. The venue will only be made known to competitors.

B.M.C.R.C. Meeting at Brooklands.

On Wednesday next, at Brooklands, the B.M.C.R.C. will hold its third members' meeting of 1910. Three events are on the programme, commencing at 2.30 p.m., details of which will be found on another page of this issue.

Special Issue of "The Motor Cycle."

The seventh spring issue and T.T. special number will appear on Thursday, May 26th, the day of the Tourist Trophy Race in the Isle of Man. Besides special articles and illustrations, it will contain an illustrated historical article descriptive of the International Cup Race (the forerunner of the present T.T. Race), and the Tourist Trophy Race to date, photographs of competitors in this year's event with specifications of their machines; touring centres, illustrated with maps of the best roads in the vicinity, etc.

The New Licence Fee of £1.

Under the guillotine motion the Budget of this year was to have passed through its last stage in the House of Commons yesterday (Wednesday), and the new uniform rate of £1 for motor cycles will be enforced for the second six months of 1910. Licences taken out this year are to cease to have effect after June 30th, and fresh licences will have to be taken out on July 1st, but allowance will be made for any duty paid for any period of 1910 previous to July 1st.

New Regulation at Brooklands.

The B.A.R.C. has issued a new regulation which will appear in future upon the instructions that are always sent to competitors before a meeting. This refers to passing at the fork, and is intended to prevent the recurrence of any accident such as the one which occurred near the fork at the Easter meeting. The regulation reads as follows: "A line has been painted on the track, near the outer edge, opposite the entrance to the 'straight.' Competitors must keep this line on their right hand unless in the act of passing a car." The same regulation applies to motor cycles.

First Open Event of 1910.

The first open hill-climb of 1910 takes place at Aston Hill, near Tring, on the 7th prox. The event is being organised by the motor cycle section of the Herts County A.C. Entries close to-morrow (Friday) at 6 p.m.

London-Land's End-London Awards.

In connection with the above competition for the Jarrott Cup, the M.C.C. has now decided to award silver medals to O. L. Summers (7 h.p. twin Peugeot) and J. V. Robinson (2¾ h.p. twin Douglas). These two names were held over for further consideration when the first list of awards was published.

A Meeting of Northern Club Officials.

An important meeting is to be held at York on Saturday, when officials representing all the important clubs in the North will meet to decide whether the clubs composing the Northern League will affiliate with the Auto Cycle Union or fight that body. The decision of the latter course would be most unfortunate. A copy of the agenda is given on another page. Some enlightened individual said the other day that there were only four important unaffiliated clubs. If he knew anything of the conditions of the North, he would find that there are more than four important unaffiliated clubs even in Yorkshire.

M.C.C. London-Edinburgh Run.

Those who rode in last year's event will be interested to hear that the bridge that was under construction at Doncaster and was so awkward to negotiate is now practically finished, and no trouble will be experienced at this spot this year.

New System of Timing.

Another important alteration so far as entrants for the Motor Cycling Club challenge cup for motor bicycles and Rover cup for cars are concerned is the entirely new system of timing to be adopted—a system which should certainly prove advantageous, especially with so many entrants. There will be a minimum of five "surprise checks" each way, at each of which will be stationed a timekeeper with a green flag corresponding with the green ribbons carried by the riders in these two events. Should any "surprise checks be arranged in the dark the timekeeper will show a green light. Riders competing for these two trophies only will be required to stop and be timed (riders for club medals will not be required to stop). The object of these "surprise checks" is to avoid the timekeeper being harassed by a crowd of more than one rider stopping at one time so that accuracy can be assured.

Another interesting feature is the special signposting of the Great North Road, which is being carried out by the Royal Automobile Club. This, in conjunction with the numerous direction arrows which are posted up all along the route by willing helpers and members of different clubs, should still further prevent any man going astray.

Entries (which closed at ordinary fees yesterday) have been flowing in for the run. Up to May 2nd entries will be accepted at double fees

Speed Trials at Whitsuntide on Filey Sands.

Permission having been obtained for the use of Filey sands for a speed contest, the Scarborough and District M.C. will hold a "flying kilometre" speed contest on these famous sands on Whit-Monday, open only to members and visiting members. Any motor cyclist who desires to become a "visiting member" may do so on payment of the fee of 2s. 6d. to the honorary secretary, Mr. H. Frain. A special electrical timing apparatus (probably wireless) will be used. Entries will be divided into classes according to cubical capacity, and the winner will be judged entirely on speed.

FUTURE EVENTS.

April 30—M.C.C. Members' Hill-climb.
May 4—B M.C.R.C. Meeting at Brooklands.
" 7—Herts. County A.C. (motor cycle section) Open Hill-climb.
" 13, 14, and 16 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.
" 26 (Thurs.)—INTERNATIONAL MOTOR CYCLE T.T. RACE
" 27—Open Hill-climb in the Isle of Man.
June 4—Motor Cycling Club second private race meeting & gymkhana at Brooklands.
" 6-11—Scottish Six Days' Open Reliability Trial, organised by Edinburgh M.C.C.
" 18—M.C.C. TEAM TRIAL FOR "THE MOTOR CYCLE" CHALLENGE CUP. Competing Teams: Motor Cycling Club (holders), Coventry and Warwickshire M.C., Bristol B. and M.C., Streatham and District M.C., Sutton Coldfield A.C., Edinburgh M.C.C., Southern M.C., Harrogate and District M.C.C., Great Yarmouth and District M.C.C., Herts. County A.C., Essex M.C., and N.W. London M.C.C.

Somewhat Ancient.

Evidently the promoters of the Tunbridge Wells Whit-Monday Sports are unacquainted with modern motor cycle matters. The names and addresses given on the list of events we have received are so hopelessly out of date that we cannot refrain from referring to them. Here are one or two examples: Under the regulations of the *A.C.G.B.I.* Competitors must be licensed by the *Automobile Club, 18, Down Street*, W. Handicapper, Mr. F. Straight, *Auto Club.*

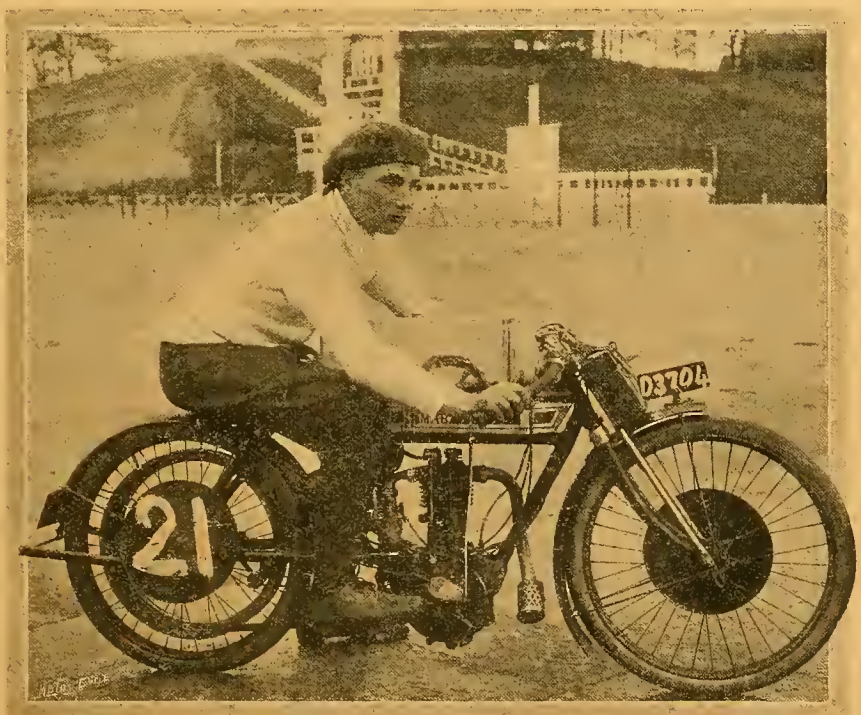
Police Traps.

We have received information that the police are very active at Ombersley, on the Kidderminster-Worcester Road. If they fail to prove excess of the legal limit the conviction is generally for driving to the common danger.

We have received rumours of a police trap between St. Albans and London Colney. The exact extent of the measured distance is not to hand, but between St. Albans and the village, a distance of three miles, caution is advised.

Motor Cycles in Denmark and Germany.

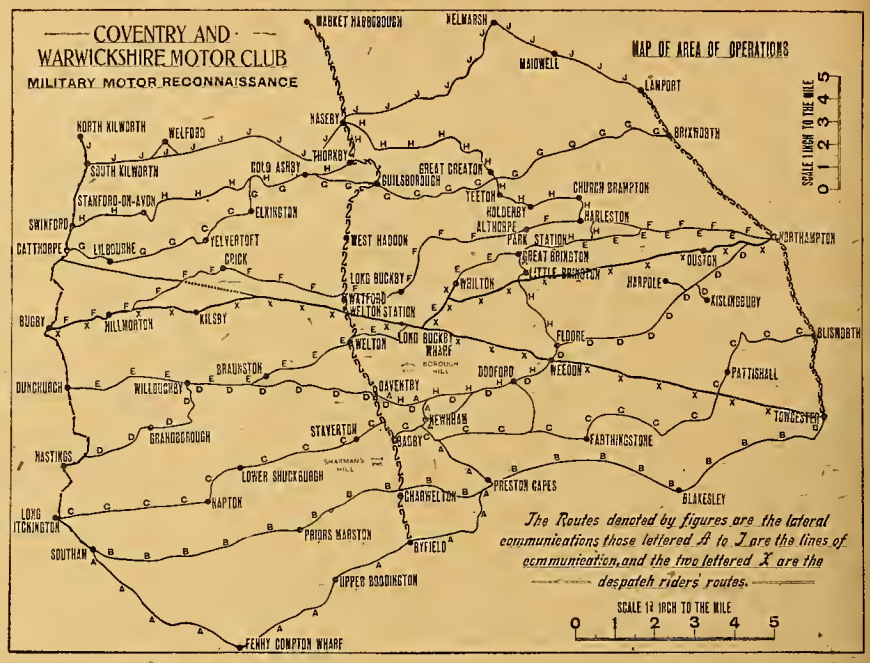
On September 1st, 1909, there were in Denmark 699 cars and 3,418 motor cycles—a comparatively high number of motor cycles, figuring out at thirteen motor cycles per each 10,000 inhabitants. In Germany with 22,479 motor cycles (January 1st, 1910) there are only 3 to 4 motor cycles per each 10,000 inhabitants. On the other hand, Germany, with her 27,462 motor cars, boasts five motor cars for each 10,000 inhabitants, whilst the figure, as far as Denmark is concerned, is only between two and three per each 10,000 inhabitants.



J. T. Bashall—a brother of W. H. Bashall—has had the above sporting little racer built for speed work, and entered it for yesterday's April Handicap at Brooklands. The machine is a M.A.B. and the engine a J.A.P., measuring 85 × 60 mm. J. T. and W. H. Bashall will ride Twin Bats in the T.T. Race.

COVENTRY AND WARWICKSHIRE M.C. MILITARY MOTOR RECONNAISSANCE.

The map which accompanies this paragraph shows the area which will be covered in the Military Motor Reconnaissance on Saturday next. Each car will be in command of a territorial officer in uniform, who will also have charge of the motor cyclists attached to the car. One or more cars will be allotted to each of the roads marked A to J. The motor cyclist scouts will be sent ahead and down each by-road at right angles to the advance, the car awaiting their report. All important information will be sent by motor cyclist despatch riders to the routes marked X. On these routes there will be despatch riders who will take the information to the General Officer in command of the Midland forces. The routes marked 1, 2, 3, are the lateral communication routes, 1 being the first reached from Coventry. Here lateral communication will be established; each car, by means of the motor cyclist scouts, will get in touch with cars on its right and left. When this has been done a move forward will take place to routes 2 and 3. The meet will be at the Barrack Square, Coventry, at 11.30 a.m., and tea at the Wheatsheaf, Daventry, about 5.30 p.m.



B.M.C.R.C. THIRD 1910 MEMBERS' MEETING.

The events down for decision at the meeting at Brooklands on Wednesday next, the 4th prox., are:

2.30 p.m. ALL COMERS' HANDICAP, for all classes of motor cycles, the cubic capacity of whose engines does not exceed 1,000 cc. Distance about 8½ miles.

3 p.m. ONE MILE SPRINT RACE, for all classes of motor cycles up to 1,000 cc. engine capacity.

4 p.m. THE THIRD AND FINAL ONE HOUR TOURIST TROPHY RACE, for motor cycles complying with the 1910 Tourist Trophy conditions in full, except that the regulation as to the weight of tools carried will not be insisted upon.

Entries close mid-day, April 30th. Admission to members is free; to the general public, 1s.

NORTHERN LEAGUE OF MOTOR CYCLE CLUBS.

A notice respecting the inaugural meeting of the above has been issued to over thirty clubs north of the Witham and Dee, and it is expected that all will be represented. The hon. secs. and chairmen will in most cases represent their respective clubs. Should any have been overlooked they are requested to regard the notice reprinted below as an invitation to attend.

"I beg to inform you that a meeting of motor cycle club officials has been arranged to be held at the Royal Station Hotel, York, on Saturday, April 30th, at 6.30 p.m., to discuss and transact the following business:

"To consider a scheme for the Union of the Motor Cycle Clubs in the North of England, and to officially form a league of such clubs as proposed at the meetings held at Scarborough, 1909-10

"To elect officers and council of the league, and discuss the rules and constitution of the association.

"To discuss the relations of the league with other motor cycle organisations.

"To make arrangements for a later meeting to be held, and suggest the business to be brought before the assembly on that date.

"To make arrangements for a meeting and combined competition to be held at Whitsuntide, and also to propose any other social gatherings to be held this season.

"As it will doubtless be apparent to you after reading the above agenda, this meeting will be of great importance to all those interested in the club movement in the North. I would therefore ask your club to kindly send two or three representatives, including yourself and the chairman of the club if possible.—(Signed) T. H. STRAKER, hon. sec."

North-West London M.C.C. Consumption Trial. Competitors lined up outside Stanmore Station after the weighing operations.

CLUB NEWS.

Edinburgh M.C.C.

The first event of 1910 takes place on Saturday next, in the form of a hill-climbing competition at Peebles.

Motor Cycle Union of Ireland (Ulster Centre).

The first hill-climb of 1910 was held at Bangor on Saturday last, the entries being divided into two classes, "A" for novices and "B" open. A handicap was arranged, entrants competing in pairs. There were twelve entrants in Class A and twenty in Class B.

Motor Cycle Union of Ireland (Ulster Centre) Hill-climb at Bangor. The winner, B. J. McManus (3½ h.p. Premier), leading in the final.

In Class A the final was won by B. J. McManus (3½ h.p. Premier with auxiliary exhaust) from C. R. Martin (3½ h.p. Triumph).

In Class B the finalists were B. J. McManus (3½ h.p. Premier) and C. Rea (3½ h.p. Triumph), the former again proving successful.

Reading and District M.C.C.

A meeting will shortly be held to reorganise the club. Will readers interested and willing to join please send names and addresses to Hon. Sec. Frank Deacon, 4, Fatherson Road, Reading. An old member is offering a prize for an opening hill-climb.

Abertillery and District M.C.C.

At a well attended first meeting of the above club, R. Wessendorff, Pleasant View, Llanhilleth, was elected president, H. Campion treasurer, and W. D. Lewis-Evans, M.A., hon. secretary. Arrangements were also made for reliability trials and hill-climbing and speed-judging competitions.

York County M.C.C.

A petrol consumption trial was held on Saturday last. The course selected was Wetherby to Boroughbridge and back, 12½ miles each way. Result:

		Miles to gallon.	Fig. of merit.
1.	C. Benn (3½ h.p. Triumph) ...	173 ...	36.08
2.	W. Bougill (3½ h.p. Bradbury)...	160 ...	34.4
3.	—. Fenton (3½ h.p. Triumph) ...	135 ...	28.8
4.	H. Wilkinson (3½ h.p. Triumph)	129 ...	27.9
5.	F. Scott (3½ h.p. Triumph) ...	131 ...	27.37
6.	H. Whitfield (3½ h.p. Triumph)	125 ...	24.6
7.	—. Boyd (3½ h.p. Humber) ...	111 ...	23.9
8.	Dr. Deane (5 h.p. Rex)	77 ...	23.2

There was a strong head wind and rain on return journey.

Lewes M.C.C.

On Tuesday next, at the White Hart Hotel, at 8 p.m., a general meeting is to be held for the purpose of drawing up rules and enrolling members of the above club. Local readers are invited.

Glasgow M.C.C.

This club has arranged to hold an open hill-climbing contest on Saturday, 7th May. The committee, looking out for a fresh hill, have discovered one within easy reach of Glasgow which is ideal as regards steepness, straightness, quality of surface, and absolute freedom from interrupting traffic. It makes a real test of the hill-climbing capacity of the modern 3½ h.p. machine. To avoid possibility of interference it is not considered advisable to publish the venue, but this is stated on the entry forms, which can be obtained from the hon. secretary, A. Gordon Bostock, Students Union, University, Glasgow.

Walthamstow M.C.

On Saturday last a members' hill-climb was held near Nazing, being well supported. After the successful events thirty members and friends sat down to tea at the Sun, Nazing Common. Messrs. A. G. Reynolds and J. W. Percival were timekeepers. Result as follows:

Class A.—Sealed handicap for passenger machines.

Rider and machine.	Nett time. M. S.	Handicap time. M. S.
1. J. H. Kerr (5 h.p. Rex)	0 52 1/5 ...	0 49 1/5
2. F. W. Applebee (5 h.p. Rex) ...	0 57 1/5 ...	0 55 1/5
3. F. A. Applebee (5 h.p. Rex)	1 2 ...	1 2
4. S. McMinn (6 h.p. Phänomen) ...	1 10 4/5 ...	1 9 4/5

Class B.—Sealed handicap for single-cylinder bicycles.

1. A. A. Blanks (3½ h.p. Rex)	0 43 2/5 ...	0 39 2/5
2. A. T. Stanton (3½ h.p. Bradbury) ...	0 42 2/5 ...	0 40 4/5
3. T. J. Sidney (3½ h.p. Brown) ...	0 43 3/5 ...	0 41 3/5

Eight competitors.

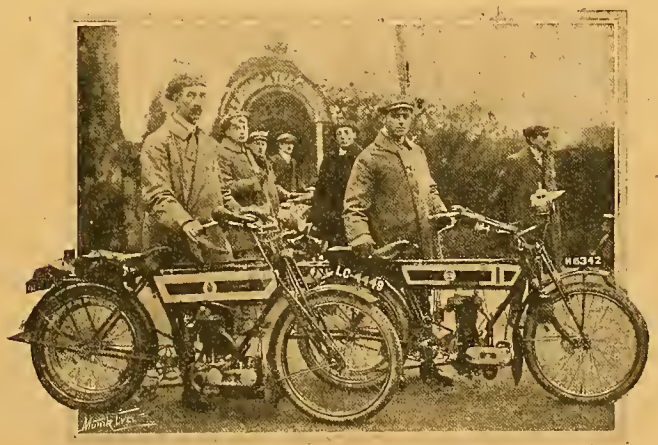
Class C.—Sealed handicap multi-cylinder motor cycles.

1. J. H. Kerr (5 h.p. Rex)	0 36 ...	0 33
2. F. W. Applebee (5 h.p. Rex) ...	0 38 3/5 ...	0 35 3/5
3. F. A. Applebee (5 h.p. Rex) ...	0 36 2/5 ...	0 36 2/5
4. G. McMinn (6 h.p. Phänomen) ...	0 42 3/5 ...	0 39 3/5

Class D.—Scratch event for single-cylinder motor cycles, run up in pairs, winner in each heat to compete again until winner was found. Winner, T. J. Sidney (3½ h.p. Brown).

Class E.—Scratch multi-cylinder motor cycles under same condition as D. Winner, J. H. Kerr (5 h.p. Rex).

Class F.—Winner of Classes D and E, J. H. Kerr (5 h.p. Rex).



North-west London M.C.C. Consumption Trial at Stanmore last Saturday. H. J. Pooley (3½ h.p. Premier) the winner, G. H. Hollis (3½ h.p. Triumph) second (see next page).

Club News.—

North-west London M.C.C.

A petrol consumption trial was held on Saturday last on a difficult course near Stanmore. The result was: 1st, H. Pooley (3½ h.p. Premier), 148.5 miles per gallon; 2nd, G. Hollis (3½ h.p. Triumph), 144 miles per gallon. Carburine spirit was kindly supplied by Mr. Brock, of Stanmore, who also lent a car for the use of officials. Mr. H. G. Cove, riding his new Matchless, acted as judge. Entries for the Coventry and return trial close next Monday, May 2nd.

Nottingham and District M.C.C.

On the occasion of the day run to Warwick and Kenilworth on May 1st, all members are asked to please be at the place of assembly punctually at 9.30, because the members of the Leicester and District M.C.C. are joining at Leicester at 10.30 prompt.

The Forest Sports Obstacle Race for motor cyclists is on May 7th. Will members who intend to compete in this event please send in entries to Mr. Spring by to-morrow (Friday)? The obstacles are to be arranged so that all classes of motor cycles can easily accomplish the race.

Harrogate and District M.C.C.

The speed-judging competition, although held in wet and boisterous weather, attracted a fair number of riders, who, in spite of the muddy roads and showers, enjoyed themselves. One competitor who was driving a sidecar experienced a puncture, and finished the run seated in the sidecar with his passenger. The results are as follow:

Rider and machine.	Speed in m.p.h.	Figure of merit.	Remarks.
F. Strafford (3½ h.p. Triumph)	17	X	Fast
W. Fawcett (3½ h.p. Scott)	16	51.4	Slow
J. A. Tindall (3½ h.p. Triumph)	20	112.3	Slow
F. Mackay (5 h.p. Rex)	18	117.1	Fast
R. Spencer (3½ h.p. Scott)	17	145.1	Slow
G. S. Sayner (3 h.p. Triumph)	20	151.4	Slow
W. F. Broadbank (3½ h.p. Triumph)	20	170.4	Fast
T. C. Atkinson (3½ h.p. Triumph)	20	270.1	Slow
W. Parker (3¾ h.p. Premier)	18	452.1	Fast
J. Mackay (2¼ h.p. Moto-Rêve)	17	561.1	Slow
J. Bramley (3½ h.p. Triumph and sidecar)	16	657.0	Fast
W. E. Grange (3½ h.p. Rex and sidecar)	19	981.4	Slow

Birmingham M.C.C.

The above club held a most successful hill-climb on Saturday last at Cox's Hill, Dunham.

Each competitor was allowed one attempt only. The hill is not a particularly steep one, but is a long grind of about three-quarters of a mile, with two rather stiff portions and two awkward corners.

The results on time were announced shortly after the competition, and are given herewith together with the results on formula. Owing to a slight error in working out the times Newey was announced as being third, whereas he should be bracketed with Slaughter for first place, Halberd then taking third place instead of second. The question of first prize will have to be gone into by the Trials Committee.

The officials were: Chief judge and timekeeper, Mr. E. R Lycett, assisted by Messrs. A. H. Haden and E. W. Winckle; starter, Mr. R. V. C. Brook. Synchronised watches were used for timing in this instance. Results:

Birmingham M.C.C. Hill-climb on the 23rd inst. Competitors comparing watches at top of the hill.

SINGLE CYLINDERS.

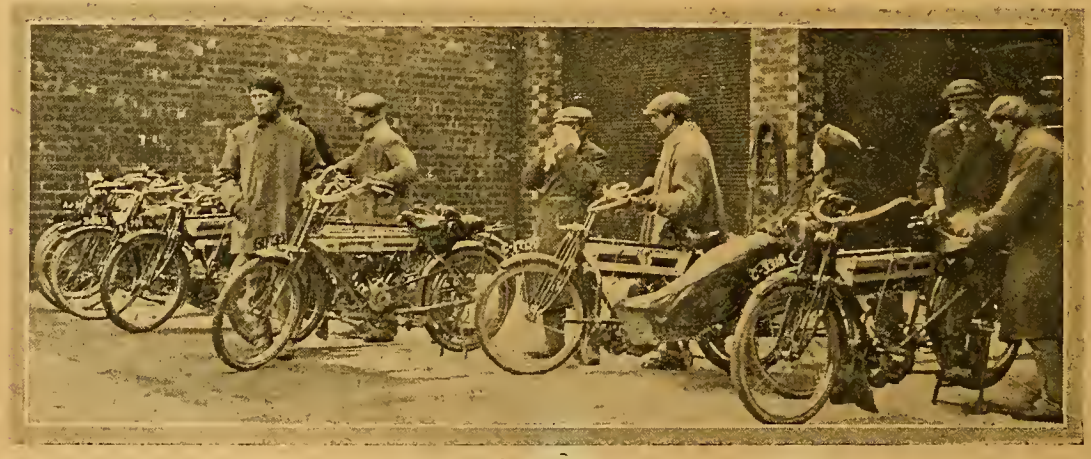
Name and machine.	Position on time.	Difference in time.	Fig. of merit.
J. H. Slaughter (3½ Ariel)	1	X	12.5
R. W. Duke (3½ Triumph)	4	6⅕	9.85
H. Newey (3½ Norton)	1	X	8.8
J. Troman (3½ Triumph)	6	8⅖	8.42
R. H. Halberd (3½ Bradbury)	3	⅕	8.4
H. J. Cox (1¾ Singer)	12	1 49⅕	8.0
R. H. Edwards (3½ Triumph)	8	9⅗	7.97
T. B. Clayton (3½ Bradbury)	4	6⅕	7.9
S. K. Jones (3½ L.M.C.)	10	29⅘	7.6
H. D. Jones (3½ New Comet)	6	8⅖	7.6
R. Samson (3½ Reg. Samson)	9	17⅘	7.3
F P. Mayell (3½ Triumph)	11	30⅖	6.66

TWIN CYLINDERS.

H. R. Fowler (5 Rex, twin)	1	X	7.7
S. C. Perryman (5 Norton, twin)	2	9⅗	7.43
S. Smith (5 Norton, twin)	3	14⅘	6.47

A. D. Arter (3½ James) failed through flooding carburetter.

Note.—Time is given in seconds slower than fastest. X = fastest. Formula used is $\frac{W}{C \times T}$.



Some competitors in the Harrogate M.C. Speed Judging Competition last Saturday assembled for the start in the garage of the Clarendon Hotel, Harrogate.

Club News.—

Bristol Bicycle and Motor Club.

The first of three reliability trials arranged by the above club took place on Saturday, the 16th inst., over a twenty-six and a half miles course, which had to be covered three times. There were checks at the completion of each circuit and a secret check on each. Competitors were penalised 1 mark for each half-minute outside schedule time at each check, and 20 marks for each stop, the one losing the least number of marks to be declared the winner. The course was a somewhat trying one, and the result was:

	Lost
W. W. Douglas (2¾ h.p. Douglas), non-stop ...	5 marks
P. Phillips (2¾ h.p. Douglas), non-stop	7 ,,
F. C. Wasley (2¾ h.p. Douglas), non-stop ...	7 ,,
Eli Clark (2¾ h.p. Douglas), non-stop	10 ,,
P. Grout (2¾ h.p. Douglas), non-stop	10 ,,
G. B. Fry (3½ h.p. Rex), non-stop	17 ,,
B. Adams (4 h.p. Roc and sidecar), 2 stops ...	64 ,,
F. Bevan (5½ h.p. Rex and sidecar), 1 stop ...	106 ,,
E. Kickham (2¾ h.p. Douglas), 1 stop	116 ,,
A. Fisher (6 h.p. N.S.U. and sidecar), 1 stop ...	206 ,,

Manchester M.C.

A few members of the above club took part in a week-end tour in Wales, making Llangollen their centre. A most enjoyable run was made round the surrounding district, and a scratch hill-climb for a three guinea sweepstake was the event of the day. The events were divided into three classes, and the winners doing fastest time of the day were as follows: Twin-cylinder class, A. J. Moorhouse (5 h.p. Indian); single-cylinder class, J. Scott (3½ h.p. Rex); passenger class, Jack Tytler (5 h.p. Dot and sidecar). The return home was made *viâ* Ruabon, Wrexham, Chester, making a stop at Cranage Farm for tea, where about twenty-four members sat down after a very successful week-end. On Saturday next the inter-team motor cycle hill-climbing competition with the Liverpool contingent takes place, head-quarters Llangollen. The annual 400 miles reliability trials for cars and cycles commences May 18th-20th.

Essex M.C.

The speed judgment test on the 17th inst. over a distance of twelve miles resulted in a win for Stanley Webb (3½ h.p. Triumph), 6⅘s. error; 2, A. Brassington (twin Rex and sidecar), 1m. 57s. error; 3, A. G. Peppercorn (3½ h.p. Triumph).

Competitors in the Bristol B. & M.C. Reliability Trial, the results of which are given on this page.

Winchester and District M.C.C.

The opening run of this club was to Basingstoke, *viâ* Alton. The weather was favourable, and an enjoyable time was spent. Tea was provided at Tyrrell's Café, Basingstoke.

Western District M.C.

Members are reminded that the closing date for names of intending competitors in the Bath and Back Reliability Trial for the "Smart Cup" is to-morrow (Friday). Names should be forwarded to the Trials Hon. Sec., Hubert J. M. Hughes, 223, Acton Lane, Chiswick, W. Competitors in this run must be at headquarters at 7.30 a.m. sharp.

Scarborough and District M.C.

The following letter has been sent to all Northern motor cycle clubs, the secretary's addresses of which are known to the secretary of the Scarborough Club:

"I should esteem it a favour if you will kindly let the members of your club know that the Scarborough and District M.C. has decided to accept as members any of the motor cycling members of your club who may be visiting Scarborough, at a reduced fee of 2s. 6d. Such 'visiting members' will have the right to enter into special competitions which will be arranged from time to time, and also be entitled to the use of the clubroom and garage during their stay in Scarborough. It is felt that Scarborough being the only watering-place on the north coast with a motor cycling club such an offer as outlined above may be appreciated by motor cyclists of other clubs. If any of the motor cycling members of your club care to join on these terms I shall be very glad if they will communicate with me.—Yours faithfully, HAROLD FRAIN, Hon. Sec.

"N.B.—A special competition—a flying kilometre—will be held near Scarborough on Whit-Monday."

Edinburgh Waverley M.C. competitors at the start of the first reliability run of 1910. From left to right the riders are: W. Gerard (Twin N.S.U.), J. R. Alexander (Twin Indian), A. H. Alexander (3½ h.p. Rex), and A. A. Hay (Matchless). The hon. sec., P. E. Tolfree, is at the extreme right astride his Matchless.

Club News.—

Swansea and District M.C.C.

A general meeting was held on the 20th inst., when officers were elected. Afterwards, Mr. Alfred Webb read a very interesting paper on "The Benefits of Clubs and Unionism," which was very much appreciated.

It is probable that the club will affiliate this year to the A.C.U., M.U., and Welsh Automobile Club. The subscription will remain 10s. per annum.

Essex M.C.

Forthcoming events are as under-noted:

May 7th.—Petrol Consumption Competition.
June 12th.—Non-stop Competition.
,, 30th.—Cripples Outing.
July 16th.—Members hill-climb.
August 19-20th.—Twenty-four Hours' Ride to York and back.
September 3rd.—Gymkhana (provisional).

The committee has decided to enter teams for the M.C.C. Inter-team Trial and the A.C.U. inter-club contest.

Burnley Victoria C. and M.C.

The newly-formed section of the above club intend to hold a hill-climb on Saturday, May 14th, for members only. There will be two classes—(1) For machines under 500 c.c. (2.) For any machine. There will also be a prize for the fastest time of the day. The entry fee is 2s. per class, and entries must be forwarded to the hon. sec., E. Brown, Myrtle Cottage, Burnley, on or before May 7th. Full particulars of membership may be obtained from the secretary. The club starts from the Yorkshire Hotel every Tuesday and Saturday at 2 p.m., Sunday 9 and 2 o'clock. The subscription for motor cyclists is 5s. 6d. per annum.

Shropshire M.C.C.

On the 17th inst. there was a run to Farlow Hill. C. Rice Oxley, the secretary, made a splendid climb on his new 1910 standard Triumph, from which the pedals had been removed the previous week. His machine was fitted with standard jet and full touring equipment, and, in spite of this and the rider's weight (12 stones), the engine picked up well round the bend, and carried the rider to the top at a comfortable speed. H. G. Potts, on a 1910 5-6 h.p. Bat-J.A.P., made three clean ascents, the machine needing no skill whatever in its manipulation round the bends, but simply going round at a walking pace and picking up with ease each time.

Surrey M.C.C.

A speed-judging trial was held on the 20th inst. The competitors were required to ride over a measured distance of one mile at a speed which was fixed by the drawing of a lot before the start at 18½ miles per hour. The results were as follows:

		Error.
1.	L. Kennard (5 h.p. Vindec)	9⅕s.
2.	H. Mitchell (3½ h.p. Triumph)	12⅖s.
3.	J. A. Manners-Smith (3½ h.p. Triumph)...	16⅗s.

J. H. Sparks (——), error 20⅘s.; G. Pine (3½ h.p. Triumph), error 22⅖s.; A. C. Maitland (3½ h.p. Trump-J.A.P.), error 22⅗s.; P. Mitchell (2¼ h.p. F.N.), error 30⅖s.; H. R. Owtram (3½ h.p. Triumph), error 44⅘s.; C. Gammon (3¼ h.p. Rex), error 54⅖s.; C. J. Feeny (3½ h.p. Triumph), error 69⅖s.; F. A. McNab (3½ h.p. Trump-J.A.P.), error 98⅖s.

The next run will be held on Wednesday, May 4th. Destination, Leith Hill. Start at 2.30 p.m.

Sutton Coldfield A.C.

As four members of the above club will be competing in the Tourist Trophy Race in the Isle of Man next month it is hoped that a good number of well-wishers and supporters will make the journey across to the island to witness what is the most popular motor cycle event of the year.

Members with T.T. machines will be catered for on the occasion of the club's annual hill-climb on May 7th, when there will be three separate classes and also a "slow" climb if time will permit after the ordinary events of the day.

There will be gold and silver medals for best on formula in each class and a special gold medal for fastest time of the day.

Full particulars may be had from the hon. secretary, Howard Smith, The Dingle, Four Oaks.

Birmingham M.C.C.

On Whit-Monday the club will join in the third annual meet of Midland motor cyclists at Stratford-on-Avon, whilst on Whit-Tuesday a 200 Miles' Reliability Trial will take place to Lincoln and back, this latter will in all probability become an annual event. On June 4th the club will meet the Oxford M.C.C. in a hill-climbing competition.

An efficiency trial is being arranged, and this will make an entirely novel competition. Particulars will be announced later.

Southampton and District M.C.

The first competition of 1910 was held on the 20th inst., this taking the form of a speed-judging test. The route selected was to Lyndhurst, *viâ* the Cump, Romsey, Pauncefoot Hill, Ower, and Cadnam (eighteen miles). The result was a tie between G. Bunting (3½ h.p. Phelon and Moore), who had drawn 16 miles per hour, and arrived 15s. slow only, and H. P. Young (4½ h.p. Humber tricar), who had drawn the 15½ miles per hour slip, and was 15s. too fast; third, E. Prince (3 h.p. Raleigh), who had drawn 19 miles per hour, but was 1m. too fast. Other competitors were various amounts in error, 8¾m. too fast being the greatest divergence scored.

Streatham and District M.C.C.

A most interesting and instructive lecture was given by Mr. A. E. Bennett, A.M.I.E.E., A.M.I.A.E., the late official examiner to the R.A.C., the subject taken being "Carburation."

Mr. Bennett carefully went into the elementary chemistry of the elements, viz., carbon, oxygen and hydrogen, laying some stress upon the danger of allowing exhaust gases to be emitted in a closed room. He showed a most interesting experiment of the properties of carbonic gas and hydride. This was ingeniously obtained by the use of an ordinary soda water syphon. He then proceeded to the main subject, "Carburation." At the bottom end of a glass tube some thirty inches long, a plug of waste, saturated with petrol, was placed. A light was then applied at the top, and by use of foot bellows air was forced through the bottom end. This clearly demonstrated how an excess of carbon produced a smoky flame, and as the proportion of petrol became less, the flame became absolutely non-luminous, and almost immediately afterwards a light blue flame was seen to travel down the tube, showing the slow burning of a weak mixture. He concluded with some valuable hints as to the methods of tuning up carburetters.

QUARTERLY TRIAL.—Scene on the road, three miles from Aylesbury. Miss Berend (Moto Reve) and W. Pratt (P. and M.) in the foreground.

The Humber Single and Two-speed Geared Models.

THERE are few machines over which the experienced and critical motor cyclist can run his eye without being able to suggest some improvement, even if only one of detail, but a very close scrutiny and examination of the latest Humber motor cycles has left no doubt in our minds that these fine machines may safely be included in that small and select category. Messrs. Humber, Ltd., have, we think, done wisely in confining their 1910 models to what really amounts to one machine built in two distinct styles. Whilst all the requirements of the "single" man are satisfied in the single-geared model, those who want a handy machine with a two-speed gear for sidecar or heavy touring work are well catered for. At the same time these two machines are practically the same model, the two-speed machine differing only from the single-geared in being fitted with a gear and being provided with footboards instead of pedals.

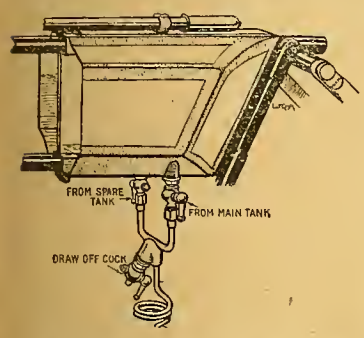


Fig. 1.—The double petrol tank, showing method of fitting tanks to top and bottom frame tubes.

Starting with the engine, this is a neat single-cylinder with a bore and stroke of 83 mm. by 90 mm. respectively. Both valves are mechanically operated, and are situated at the side of the engine in an extremely accessible position. The timing gear is enclosed in an oil-tight aluminium casing, which also covers the intermediate and magneto pinions, whereby the Bosch magneto is driven off the exhaust timing wheel. The magneto itself is carried on a platform forming a forward extension of the crank chamber. A means for lifting the exhaust valve is incorporated

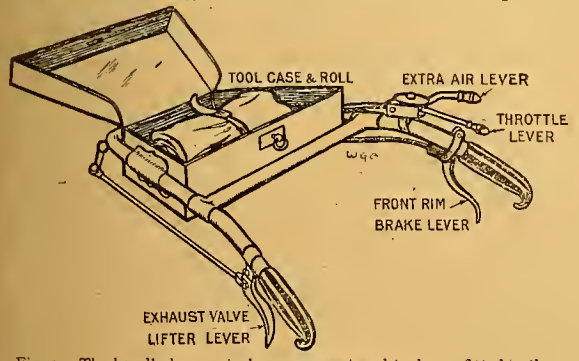


Fig. 2.—The handle-bar control arrangement and tool case fitted to the 3½ h.p. Humber.

in the timing gear, and the crank for this purpose passes through the timing gear case and is connected up to the lever on the left handle-bar through a system of rods with ball joints. Being enclosed the exhaust valve lifting mechanism is kept constantly lubricated, and does not form a harbour of refuge for dirt and grit. The exhaust pipe deserves a special note; it is of most sensible diameter, and contains no sudden bends. The silencer is underneath and forward of the crank chamber, and is fitted with a neat cut-out operated by the right foot. The crankshaft runs in ball bearings.

The crank case of the engine forms an integral part of the frame. The front down tube is attached to the extension of the case which carries the magneto, whilst the saddle tube and rear forks unite in a short bracket to which the crank case is also bolted. This arrangement is shown in fig. 6.

The B. and B. carburetter is placed behind and close up to the cylinder, where it is within easy reach from the saddle.

A very notable feature of the Humber machines is the arrangement of the petrol and oil tanks, which is illustrated in fig. 1. The tank is made in two complete halves, each quite independent of the other, and fitted with its own filler and outlet tap. The sectional shape of these tanks is such that when placed together two square spaces are left for the top and bottom tubes of the frame to pass through, the double tank being secured in position at the top by a long sliding clip which also carries the tyre inflator, and at the bottom by a couple of small lugs and bolts. The right-hand tank is divided into two compartments, the forward one of which forms a receptacle for lubricating oil which is drawn therefrom and supplied to the engine crank case by an inclined hand pump. As its petrol capacity is therefore considerably less than that of the right-hand tank, the latter is used for ordinary running and the former in case of emergency. The two outlet pipes from the tanks unite in a neat little fitment, which allows petrol for injection and other purposes to be drawn out of either or both tanks. As shown in fig. 1, the combined tank is neatly bevelled, and is decidedly pleasing in appearance. On its left-hand side a cavity is formed to afford easy access to the sparking plug and valves.

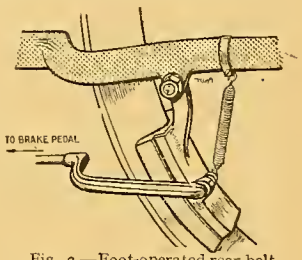


Fig. 3.—Foot-operated rear belt rim brake worked by a pedal shown in fig. 4.

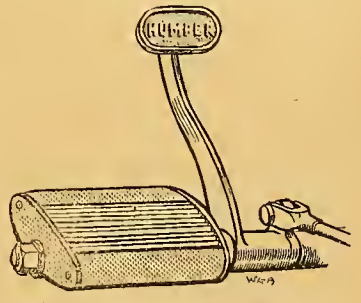


Fig. 4.—Rubber-covered footrest and rear brake pedal.

With the exception of the ignition advance lever, which is on the left-hand side of the tank, the engine is completely controlled from the handle-bars. As can be seen in fig. 2, the right hand has charge of the throttle and extra air lever, whilst the left controls the exhaust valve. The right hand also actuates the front rim brake through a Bowden wire. The extremely neat and original way in which the tool case is mounted in the forward portion of the handle-bar is shown in fig. 2, and is such an excellent idea that it needs no further recommendation at our hands. The extra strut on the handle-bar for carrying a watch or hooter will be noted.

The Humber Single and Two-speed Geared Models.—

The braking arrangements on both the single-geared and two-speed machines alike leave nothing to be desired. The front wheel rim brake is common to both types, and in the single-geared model it is supplemented by a neat and strong belt rim brake operated by the right foot. This fitting and its mode of actuation are shown respectively in figs. 3 and 4, the latter illustration showing also the comfortable rubber-covered footrest which is fitted in addition to the

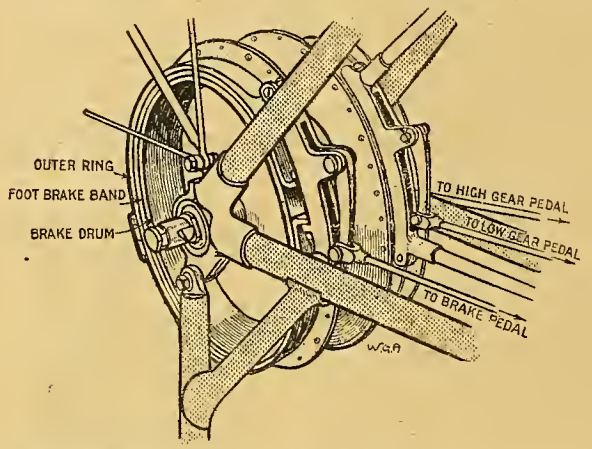


Fig. 5.—Humber two-speed geared hub (made under Roc licence). The braking surfaces of the pedal brakes are steel to cast iron. The wheel spokes have been omitted for the sake of clearness.

usual pedals. The rests are carried on a bar extending across the front of the crank chamber, and are capable of being swivelled on this bar into the most comfortable position.

In the case of the two-speed model, the rear wheel brake is fitted on the right-hand side of the back hub. This brake is exactly similar to the two others on the opposite side of the hub which serve to engage the clutch or lock the epicyclic train enclosed within it. Fig. 5 shows the brake side of the two-speed gear and its general arrangement. The drum upon which the brake acts is of large diameter, and is of cast-iron; the contracting ring which forms the brake shoe is of steel and is surrounded with a guard ring, or "keep,"

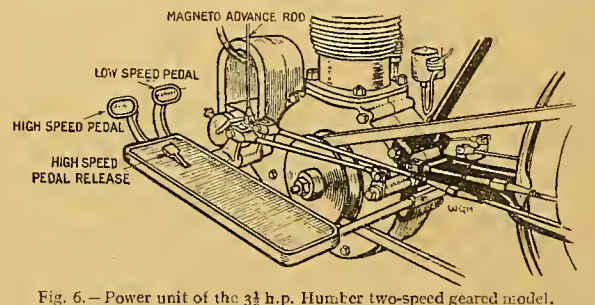


Fig. 6.—Power unit of the 3½ h.p. Humber two-speed geared model. The foot brake pedal of this pattern is on the right footboard.

which ensures it expanding, when out of action, evenly all round and just clear of the drum. The clearance being small prevents grit finding its way in between the surfaces. The bell crank through which the brake is applied is pivoted on a crescent-shaped bracket supporting the guard ring and secured to a branch of the back forks by a short tube. The crescent for the bell crank of the low gear, the drum for which is between that of the high gear and the brake, is supported by two separate tubes as shown. The high gear brake, which causes the whole gear box and hub to run solid, is actuated through a shaft which slides in the tubular axle, and is pushed in and out by an external bell crank.

Fig. 6 exhibits the pedal control of the two-speed gear, the position of the pedals being the same as when the high gear is in, the high speed pedal being secured in its fully-on position by a neat catch passing through the rubber-covered footboard. When both pedals are released the epicyclic gear is in neutral. A slight pressure with the foot on the low speed pedal causes the gear to take up the drive, the brake—which acts as the clutch—being slipped to any desired extent. To get into high gear the toe is moved from the low and finally locked "home" by the trip-catch. Pressure on the latter makes the engine "free."

It will be realised that with this gear a third and powerful brake is provided, as when the high gear is in operation gentle pressure on the low gear pedal puts on a brake. The brake actuating rods are provided with right and left-hand turnbuckles, so that the clutches can be adjusted to a great nicety.

Both the single-geared and two-speed models are fitted with an adjustable engine pulley, which allows the gear ratio between engine and road-wheel to be altered through a fairly wide extent.

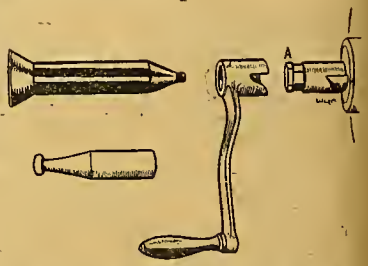


Fig. 7.—The hand-starting device fitted to the rear hub axle. On the left the grease squirt with wooden plunger for injecting grease into the hub through the axle which is hollow.

Among the advantages of the Roc type of gear is the hand starting, the arrangement for which is shown in fig. 7. A handle, which when out of use is carried in the handle-bar tool bag, is fitted to an extension of the back axle on the right-hand side, the engine being started without jacking up or running along. A neat little fitting supplied with the machine is the grease squirt with which the gear box is supplied with lubricant. The body of the squirt screws into the back axle extension in the place of a small plug, and grease is pumped in with the aid of a wooden piston.

Beaded-edge Dunlop tyres 26in. by 2¼in. are fitted to both wheels, and the standard machines embrace stand, carrier, number plates, ⅞in. rubber belt, and all requisite tools.

As regards comfort and appearance, the 3½ h.p. Humber machines reach a very high standard, the black-edged chamfered tank, long handle-bars, sensible mudguards, and general *tout ensemble* being very taking.

We have received a communication from the Assistant Comptroller of the G.P.O., calling attention to the embarrassment of the sorting staff caused by the number of letters reaching *The Motor Cycle* bearing the word "London" only. The address of the editorial offices of *The Motor Cycle* (20, Tudor Street, London, E.C.) is clearly given at the foot of the "Contents" on the first page. Correspondents should make a note of this for future reference.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

A Motor Cycle for Canadian Roads.

(1.) What make of motor cycle would be best for use in Manitoba, Canada? (2.) What good English or American firms have a depot in Canada?—B. V. R.

(1.) Naturally, we cannot recommend any one specific make, but if you will look through our advertisement columns and select a machine which you think will suit your requirements we will let you know if it will suit you. You will require a machine with the crank case fairly high off the ground, and one that is not too heavy, but yet strongly built. (2.) Brown Bros., Ltd., is the only English firm we know of having a depot in Canada. The address of the depot is Tangent Cycle Co., 418, College Street, Toronto.

Ground Clearance. Magneto Switch.

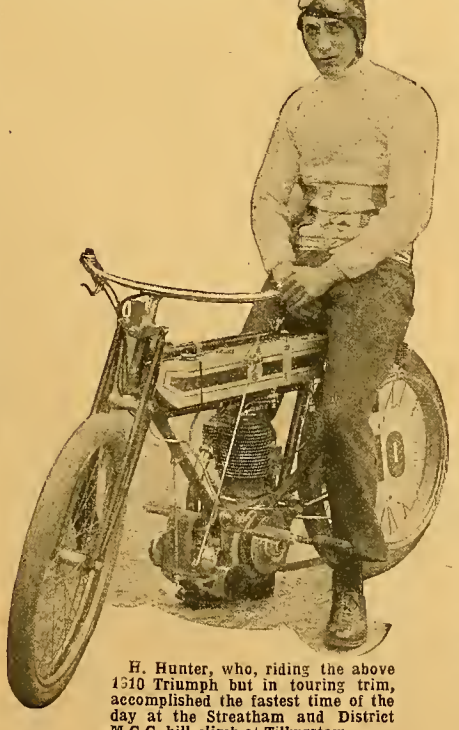
(1.) Do you consider 2½in. to be enough clearance between the bottom of the crank case and the ground, as I have had a new 6 h.p. J.A.P. engine fitted to a No. 5T Chater-Lea frame, and could not get the engine any higher up on account of the silencer fouling the bottom bracket. I think that 2½in. will clear any road. (2.) I also want to fix a switch so as to cut the magneto out. Would you inform me as to how to do it? (3.) Is it possible to make the engine so that I could cut out the back cylinder at times? The magneto is Bosch type, D.A.V., and the engine is one of the latest 6 h.p. J.A.P., with gear-driven magneto and m.o.i.v.—C. V.

(1.) We think that 2½in. is barely sufficient clearance; hardly enough to clear the average brick, should you unfortunately encounter one in the road. It would also be risky for you to wheel the machine off a pathway on to the road. It is, we think, cutting it rather too fine. Four inches is the minimum safe clearance. (2.) It is quite easy to fit a switch. You merely connect a wire from the earth terminal of the magneto (immediately over the contact breaker) to the switch. The switching off is done by earthing the current; that is to say, hen the switch is "on" and the wire connected to earth through the handle-bar, the magneto is put out of action. (3.) Yes, you can easily arrange to cut out the back cylinder by fitting an exhaust lifter, which will raise one valve before the other.

Exemptions from the Local Taxation Licence.

The writer has a motor cycle which he uses for business purposes only. The machine has a bag carrier at the back on which is a handbag of catalogues. It has been registered, and has the plates properly fixed at back and front. Will you kindly say if I require an Inland Revenue licence provided I have my firm's or my own name and address painted on in not less than 1in. letteres?—S. R. G.

It seems that the Local Taxation Licence Authorities only recognise a machine to be exempt from licence duty provided it is specially constructed for the transport of merchandise. If you can persuade your local authorities that they have no right to tax your machine and have your name painted on the tank in 1in. letters, you will be entitled to exemption. You will not, however, be able to use the machine *at any time* for pleasure purposes.



H. Hunter, who, riding the above 1910 Triumph but in touring trim, accomplished the fastest time of the day at the Streatham and District M.C.C. hill-climb at Tilburstow.

Fitting an Exhaust Cut-out.

I am informed that by fitting a cut-out to the exhaust pipe or silencer of my 2¾ h.p. F.N. I shall obtain more power on hills and keep my engine cooler. Please inform me—(1.) Is this correct? (2.) If a cut-out is an advantage, why is it not fitted by the makers? (3.) Is it sufficient to drill a hole in the exhaust pipe and fit a slide? If so, should the position of the cut-out be about half-way between the cylinder and the exhaust box? (4.) What size ought the hole to be?—W. E. E.

(1.) In certain cases, where an inefficient silencer is fitted, a cut-out will improve matters. (2.) However, it is a barbarous fitting, which renders motor cycles unpopular, as it causes much inconvenience to other users of the road. (3 and 4.) You might drill out the holes slightly in the exhaust pipe without greatly increasing the sound; but, if you like, you can fit a cut-out just short of the silencer by cutting a proper-sized hole in the pipe and fitting over it a cut-out which can be bought ready made.

Selecting a Machine for Sidecar Work.

(1.) Would you prefer m.o.i.v. or a.o.i.v. on a 6 h.p. twin light J.A.P. engine? (2.) Do you think that the J.A.P. automatic lubricating system is superior to the ordinary method of pumping oil into the engine? (3.) Is a 6 h.p. light twin J.A.P. engine powerful enough to fit into a No. 5T Chater-Lea frame and sidecar, weight to carry about 22 st., without having to assist on steep gradients with the pedals? (4.) Do you consider the J.A.P. automatic carburetter is an improvement on the ordinary carburetter?—C. V.

(1.) In a twin-cylinder engine we should emphatically recommend mechanically operated inlet valves. (2.) The lubricator in question is a good one and undoubtedly a saving of trouble and worry during the warm months, but in cold weather requires careful manipulation, as cold often causes the oil to flow very slowly. (3.) The engine should be quite powerful enough for a sidecar, especially if a two-speed gear is fitted. (4.) We have a high opinion of the carburetter mentioned. Leave your decision as regards this accessory in the engine maker's hands.

An Old Trouble. Pitting of Valves.

I am troubled with the exhaust valve of my 3½ h.p. 1907 machine pitting badly, which soon makes the compression very poor. I have found cast-iron head valves very good, but the heads break so soon, and at present am running on a steel valve. Is the trouble likely to be the carburetter, do you think? It is a Longuemare with a five-slot jet.—B. A.

Of course, if the mixture is very strong it will tend to pit the valves more than if you were running on a correct or cool mixture. Verify the adjustments of the carburetter by previous hints in these columns. On the other hand, you may find some improvement from a valve of nickel or nickel-steel, or other special heat-resisting material.

5 or 9 h.p. for Sidecar Work.

(1.) Is a 7-9 h.p. Peugeot a suitable mount for solo and sidecar work, or is it too powerful? Would it be capable of climbing 1 in 9 with two up, total weight 21 st., or would a 5-6 h.p. Peugeot answer the purpose just as well? What gradient might I expect the latter to climb with a suitable gear; also what gear would you recommend?—H. P.

The 7 h.p. machine would be better for sidecar work than as a solo machine. If hill is short, it should climb 1 in 9 with two up on top speed if you get a good run at it. The 5-6 h.p. would take about 1 in 12 on top speed. Of course, for sidecar work a two-speed gear is desirable, and practically indispensable for touring in moderately hilly districts or driving through traffic with comfort. For passenger work you should gear the 7-9 h.p. 4¼ to 1 and the 5-6 h.p. 5 to 1. An adjustable pulley would enable you to experiment with slightly higher or lower gears, depending on the weight of machine and passenger.

Engine Stiffness.

Would it do any harm in the way of overheating to my two-speed motor bicycle to use Vacuum A water-cooled oil instead of an air-cooled oil? It is most difficult to start the engine with handle on the back axle, and I invariably have to pour two oil cans of petrol in at least before I can get the piston free, which must be bad for the engine, as I get such a head of gas on in the engine that it always backfires first. What I want to know is whether it would be better to stick to air-cooled oil and keep on pouring in petrol in quantities stated, or use a water-cooled oil and only a few drops of petrol.—H. J. E.

You may well use the thinner oil, as if the stiffness you complain of is entirely in the engine you are using much too thick oil. Do not free the piston with petrol, but use paraffin if you have to free your rings. So much petrol will be likely to cause a seizure, or a crank case explosion is not even unlikely. In the summer time probably you will be able to use the slightly thicker oil with good results. By the way, are you sure that the stiffness is entirely due to the engine? We should be inclined to think that something is binding in the gear, or the brake bands are too tight. Try revolving wheel and engine with the belt removed. Another point is to see that the exhaust valve is lifted well off its seating when the lifter lever is raised. If not, there is a partial compression in the engine. You may cure this by taking up the slackness in the wire.

Throttling Down a Four-cylinder.

I have a 5-6 h.p. F.N. which goes very well except when one wants to reduce speed below, say, fourteen or fifteen miles per hour. If the throttle is further closed the engine immediately stops firing, and the only way to drive in traffic is to set the throttle about a third open and use the exhaust lifter. The ignition is, apparently, in perfect order, and the compression good the valves also are timed correctly. I have a standard F.N. carburetter with separate throttles over each cylinder. I have also an inlet pipe the same shape as the 1910 model, *i.e.*, the gas enters between the second and third cylinders. If the engine is run light when on the stand it is practically impossible to control it at less than 600 or 700 revolutions per minute. If the throttle is further closed the engine immediately stops. If this is a peculiarity of this type of machine and cannot be altered, of course I must put up with it.—B. B.

We should recommend you to see that there are no air leaks in the inlet pipe and carburetter unions, and to exclude as much extra air as possible. For running slowly you want a strong mixture and little of it. You should also examine the throttles, and see that each one has the same opening. If you find that this is not the case, you must file the openings until they are absolutely equal in every case. The new carburetter fitted to the latest type of F.N. would greatly improve the machine, but unfortunately, the makers are at present unable to deliver it. As a last resource, you should try restricting the main air intake, and then, if no improvement, slightly weaker inlet valve springs. The difficulty you mention is not common to four-cylinder F.N.'s. We have personally witnessed one of these machines run slower than ten miles an hour, with the engine firing regularly.

A Silencer at Rear of Machine. Economy in Petrol.

(1.) I am thinking of fitting a 3½ h.p. Rex with a silencer somewhere towards the rear of the machine, and leading a copper exhaust pipe back to it. Will you let me know whether this would be advantageous in the way of cooling the exhaust gases, and also the minimum thickness (in the walls) of copper tubing which one may use for the purpose, from the point of view of economy? (2.) What is the principle of so-called "petrol economisers"? Would it be simple to make some such fitting to attach to a 1910 Brown and Barlow carburetter?—G.B.

(1.) Yes, it is quite good practice to have a good long exhaust pipe, as this cools the gases and so reduces the sound. You must not, however, use a copper pipe; the joint would always be giving trouble, as it does not stand the heat. The pipe would have to be a steel one of the thickness of the existing exhaust pipe. (2.) The petrol economiser referred to (we presume you mean White's) is really a device for controlling the fixed air supply to the carburetter, and is very useful for starting in cold weather. It is not really an economiser except that in some cases it allows a smaller jet to be fitted than previously if the air at the bottom of the carburetter is partially closed. In the case of a B. and B. 1910 model you can fit the "economiser," or a suitable adapter can be supplied which will ensure easier starting if you have any trouble in that direction.

Gordon L. Fletcher and a 1908 pattern 2¾ h.p. twin-cylinder Douglas on which he has set up some notable performances, particularly in long-distance reliability trials. His most recent successes were in the M.C.C. Jarrott Cup Competition (when he won Mr. Trotman's prize for best performance on a lightweight), and a no-trouble run in the last Quarterly Trial.

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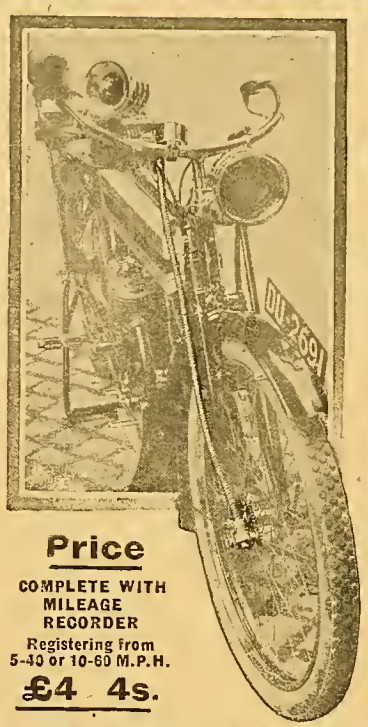

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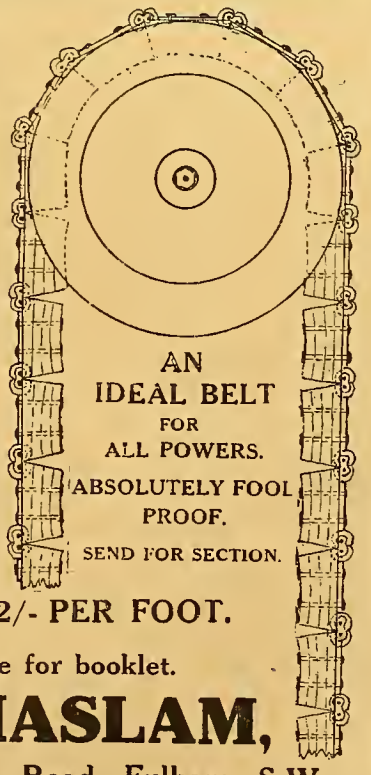

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PRICES.

ADVERTISEMENTS in these columns — 1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

No. 2355.—1¾ h.p. Magneto MOTOSACOCHE, Clincher tyres, pump, stand, carrier, toolbag, etc., a reliable lightweight; **£20.** Guaranteed.

No. 2339.—3½ h.p. Magneto N.S.U., Clincher studded front cover, Palmer back, lamp, horn, toolbag, stand, carrier, etc.; **18 Guineas.** Guaranteed.

No. 2343.—3½ h.p. Standard J.A.P.-BAT, stand, carrier, etc., magnificent machine, as new; **30 Gns.** Guaranteed.

No. 2342.—5 h.p. 1908 VINDEC, good tyres, handle-bar control, horn, carrier, toolbag, etc., good solo or sidecar machine; **26 Guineas.** Guaranteed.

No. 2356.—6 h.p. 1909 EAGLE Runabout, magneto, two speeds, Dunlop tyres, well sprung, very fast, horn, lamps, etc.; **£58.** Guaranteed.

No. 2370.—8 h.p. MINERVA, magneto, two speeds, spring forks, with Montgomery sidecar, quantity of spares, an excellent combination; **38 Guineas.** Guaranteed.

No. 2358.—3½ h.p. 1907 MINERVA, spring forks, good tyres, stand, carrier, toolbag, a smart, reliable machine; **16 Guineas.** Guaranteed.

No. 2351.—3½ h.p. new 1909 Tourist REX, 1910 improvements; **£38.** Guaranteed.

No. 2286.—3½ h.p. MINERVA, Chater-Lea frame, good tyres, very reliable, suit beginner; **10 Gns.** Guaranteed.

No. 2350.—5 h.p. Twin PEUGEOT, No. 6 Chater-Lea frame, magneto, handle-bar control, horn toolbag, stand, etc., in excellent condition, suitable for sidecar work; **20 Guineas.**

No. 2362.—2¾ h.p. 1909 DOUGLAS, standard model, good tyres, horn, toolbag, stand, carrier, a fast reliable lightweight, in excellent condition; **£28.** Guaranteed.

No. 2272.—2¾ h.p. MINERVA, magneto, Dunlop tyres, horn, toolbag, staud, carrier; **16 Guineas.** Guaranteed.

No. 2330.—3½ h.p. N.S.U., magneto, footrests and pedals, good tyres; **£17 10s.** Guaranteed.

No. 2287.—2¾ h.p. Twin FAIRY, Palmer tyres, in perfect condition throughout; **£12 10s.** Guaranteed.

No. 2073.—3½ h.p. Magneto QUADRANT, good tyres, spring forks; **£17.** Guaranteed.

No. 2261.—4½ h.p. Four-cylinder F.N., magneto, spring forks, footrests, good tyres, two toolbags, stand, carrier, etc.; **£24.** Guaranteed.

No. 2290.—3½ h.p. 1908 Two-speed REX DE LUXE, Cantilever seat, spring forks, good tyres, good solo or sidecar machine, **£25.** Guaranteed.

No. 1710.—2¾ h.p. 1909 LA FRANCAISE, horn, stand, carrier, as new; **16 Guineas.** Guaranteed.

No. 1953.—5-6 h.p. BAT-J.A.P. Racer, adjustable pulley, Rom tyres, J.A.P. carburetter, almost new; **£35.** Guaranteed.

No. 2209.—6 h.p. MATCHLESS, Palmer tyres, magneto, Whittle belt, spring frame and forks; **£25.** Guaranteed.

No. 2335.—3½ h.p. 1909 Two-speed HUMBER, Dunlop tyres, toolbag, usual tools; machine is as new, enamel, plating, engine, gear, etc.; **30 Guineas.** Guaranteed.

No. 2111.—4½ h.p. 1908 Twin MINERVA, spring fo s, Continental tyres, excellent condition throughout; **20 Gns.** Guaranteed.

No. 2314.—2¼ h.p. Lightweight Two-speed F.N., 1910 model, spring forks, stand, carrier, pump, toolbags, etc. as new; **£33.** Gnaranteed.

No. 2332.—3½ h.p. 1908 Two-speed G.B., Nala gear, good tyres, enamelled grey, lamp, horn, pump, two toolbags, etc., would make good passenger machine; **£25.** Guaranteed.

No. 2333.—3½ h.p. 1907 MINERVA, spring forks, adjustable pulley, handle-bar control, stand, carrier, toolbag, etc.; **£15.** Guaranteed.

No. 2237.—5-6 h.p. BAT, M.O.V., 1910 model, Rom tyres, shop-soiled only; **£49.** Guaranteed.

No. 1939.—8 h.p. MATCHLESS Racer, J.A.P. engine; winner of several competitions; price **£2? 10s.** Guaranteed.

No. 1664.—3½-4 h.p. ROC, Druid spring forks, magneto ignition; **£15.** Guaranteed.

No. 1822.—2½ h.p. ARIEL, shop-soiled only, 1909 model; **16 Gns.** Guaranteed.

No. 1509.—1¾ h.p. F.N. Lightweight, magneto, spring forks; **£15.** Guaranteed.

A few only 1910 Two-stroke 3½ h.p. REXES, new; price **£48.**

No. 2247.—3½ h.p. VINDEC, magneto, good tyres, F.N. engine, toolbag, horn, footrests, stand, carrier; **£15.** Guaranteed.

No. 2249.—3¼ h.p. WOLF. Clincher tyres, horn, toolbag, etc., enamel, plating, engine, etc., as new; **£15.** Guaranteed.

Two 5 h.p. 1909 Twin REX DE LUXE, two-speed gears, standard models, new; **42 Guineas** each. Guaranteed.

No. 2208.—2¼ h.p. BRADBURY, h.-b. control, Clincher tyres, excellent condition; **13 Guineas.** Guaranteed.

Besides those quoted in this space, we can offer other good bargains. Do not fail to get our prices before definitely deciding. Recommended by all the leading makers for exchange business. Terms on application.

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For the convenience of advertisers, letters o addressed to numbers at "The Motor Cycle" When this is desired, 2d. will be charged for regis and three stamped and addressed envelopes must for forwarding replies. Only the number will ap the advertisement. Replies should be addressed ooo, c/o 'The Motor Cycle,' Coventry", or if "Lo is added to the address, then to the number gi "The Motor Cycle," 20 Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown may deal in perfect safety by availing themselves Deposit System. If the money be deposited with Motor Cycle," both parties are advised of this recei upon intimation of the arrival and acceptance goods, the money is forwarded less a charge of registration. The time allowed for a decision after of the goods is three days, and if no sale is effecte party to the transaction pays carriage one way. transactions exceeding £10 in value, a deposit 2s. 6d. is charged. All deposit matters are deal at Coventry, and cheques and money orders sho made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and rece answer to their enquiries are requested to rega silence as an indication that the goods advertise already been disposed of. Advertisers often rece many enquiries that it is quite impossible to reply t one by post.

MOTOR BICYCLES FOR SAL

SECTION I.

Northumberland, Cumberland, Durham, Westmoreland.

4½h.p. Twin Minerva, magneto ignition, m perfect condition; £17 10s.—Forster, N Cross, Durham.

N.S.U. 3½h.p., magneto, splendid condition. model, lamp, generator, horn and spares, bes little used; £21.—Fox, 1, High Row, Darlington

4h.p. Pengeot-Chater-Lea for sale, in splendid order, good tyres, ac., Watawata, and stand; Apply, Rowntree, Worswick St., Newcastle-on-T

TRIUMPH Motor Cycle for sale, last year's sta machine, 3½h.p., as good as new. Clincher studded tyres, horn, one or two spares; owner prob from riding; price £35.—William Scott, 70, Sh Terrace, Tweedmouth.

4h.p. Bat-Stevens, Ruthardt, magneto, Longue toolbar, lamp, Fitall two-speed, two pulleys, spare valves, etc., grand going order; £14.—Jam 16, South St., Sunderland.

SECTION II.

York and Lancashire.

TRIUMPH, late 1909 almost new, run about miles; £38.—Hyde, Ormskirk.

3½h.p. N.S.U., magneto, spring forks, just overha £20.—Procter, Boston Spa.

TRIUMPH, 1909, excellent condition, not run miles, spares and accessories; £37.—Below.

ARIEL, 3½h.p., 1910, rear sprung, Varial gear free engine, not run 100 miles; listed £51 accept £45; either, but not both above.—Dr. Ho Stockton Heath, Warrington.

3½h.p. Minerva, 1908, accumulator, as new; 27, Amos St., Church Lane, Harp, Manch

1910 3½h.p. Humber, two speeds, as received in c £45.—R. Blezard, 26, Bank Hey St., Black

TRIUMPH, 1907, magneto, new tyres and belt, b ful running order; £22.—Edmunds, 44, Percy Rotherham.

P. and M., 1908, geared, handle starting, machine tyres good as new, not run 3,000 miles; any t £32.—Below.

BRADBURY, 3h.p., accumulator, spring forks mers, almost new, powerful and reliable; bar, £15.—Haslam, Ecclesall Rd., Sheffield.

PREMIER, 3½h.p. twin, brand new; good reason selling; £40.—Wray, engineer, Virginia St., So port.

1909-10 Moto-Reve, practically new, only req seeing; £24 10s., bargain.—Burgess, Wincob Sheffield.

3½h.p. 4-Stroke Scott, just delivered, still in cr £53.—Apply, Box 4,568, *The Motor Cycle* Off Coventry.

DOUGLAS, Bradbury, Norton, Ariel, Lincoln P.M.C. two-stroke; sole agent for Manchester triet, Gourlay, Fallowfield.

MOTOR BICYCLES FOR SALE.

3½h.p. Triumph, 1908, Palmer cord tyres, looks like new; £32.—C. R. A. Wartnaby, Clipston, Market Harborough.

1910 Twin Premier, brand new, and perfect, lamp horn, and spares; 40 guineas.—Apply, Box 4.575, *The Motor Cycle* Offices, Coventry.

HUMBER, 3h.p., in good condition, free engine, chain-driven; £10, or best offer, a bargain.—Robinson, 1, Belvoir Rd., Coalville.

1909 Humber, two speeds, Dunlop studded, perfect condition; approval; bargain, £32 10s.—68, Bishopton Rd., Smethwick.

MOTOSACOCHE, Moto-Reve, Douglas lightweight, magneto; full particulars; cash.—Gen, 475, Mansfield Rd., Nottingham.

QUADRANT, 1¾h.p., surface carburetter, non-trembler Clincher tyre, back cover and tube new; £4 5s.—01, Wilks Rd., Leamington.

ROC, two-speed, 4½h.p. J.A.P. engine, Bosch magneto, Palmer cord, Druid forks, perfect condition; £83, Waterloo Rd., Smethwick.

ROYAL ENFIELD, 2¾h.p., B. and B. carburetter, h.b. control, Palmers, good running order; £10.—38, Eastwood Rd., Birmingham.

TRIUMPH, Rex, Minerva, Excelsior motors, new and second-hand; send for weekly list.—The Victoria Garage and Electrical Co., Ltd., Coventry.

F.N., 5-6h.p., 1909, h.b. control, footrests, fast, comfortable, good condition, branched induction, pour lubrication.—Holroyd, Earlston, Coventry.

TRIUMPH Motor Cycle, 3½h.p., new September last, little used, in perfect order; cost £48, what offers?—Write, Box 4.471, *The Motor Cycle* Offices, Coventry.

1909 3½h.p. Minerva, magneto, Grose non-skid, puncture-proof, butted tubes, new belt, adjustable pulley spares, new condition; £25.—Allen, Rockingham Rd., Kettering.

3½h.p. Bradbury, new July last, only run a few times, adjustable pulley, two-note horn; I will ride fifty miles to purchaser; £25; giving up riding.—Orbell, Newland, Lincoln.

DE Dion, 2½h.p., genuine, low seat, long handle-bars, copper tank, footrests, new belt, and Hellesen's battery; £10 10s.—Walker, Ashmount, Loring Rd., Whetstone.

3½h.p. Rex, excellent condition, handle-bar control, spring forks, adjustable pulley, accessories; £15; will ride 50 miles to likely buyer.—Allen, 1a, Waterway St., Nottingham.

1910 Humber, Premier, Ariel, and Enfield, latest models, in stock; exchanges; special allowances; cash offers entertained; several shop-soiled.—Evans, 358, Stratford Rd., Birmingham.

PREMIER, 3½h.p., latest model, with White and Poppe engine, studded Dunlops, absolutely as new, spares; cost £47 10s., accept £36.—90, Thornhill Rd., Handsworth, Birmingham.

MOTO-REVE (nearly new, September, 1909), only slightly used, every latest improvement; cost £41, will accept £23; will ride any reasonable distance to likely purchaser.—Edwards, 50, Wellington St., Leicester.

1909 Free Engine Triumph, new back tyre, at present at Triumph Wks., where the machine is being thoroughly overhauled, lamp and generator, all complete; for £43.—G. Smith, 37, Northumberland Rd., Coventry.

3½h.p. Triumph, magneto, in perfect order, engine rebushed, new piston, new belt, two new Palmer tyres, spring seat-pillar, handle-bar control, all latest improvements, very cheap, with spares, lamp, horn, and tools, £29.—Bomford, Exhall Court, Alcester.

PREMIERS (twin or single), Douglas, and Enfield.—Birmingham and District Agency. Samples on view at Depot, and at Stand 131, of the Bingley Hall Exhibition; trials arranged; present machines taken in part payment; deferred payments if desired; few second-hands.—Colmore Depot, 31, Colmore Row (opposite Cathedral Church).

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

3h.p. Brown, perfect; £8 10s.—43, Ellisley Av., Cambridge.

SPECIAL Bargain.—3½h.p. Rex, good order; £9 10s., or spot cash.—Full particulars, R. Bone, Fakenham.

NEW 1909 Bradbury, 3½h.p., ball bearing engine, magneto, handle-bar control; best offer over £36 taken.—Below.

1910 Bradbury, second-hand, as new; 40 guineas, or offers.—Below.

1909 Premier, 3½h.p., magneto, handle-bar control, new rubber studded back tyre, new spare belt, Cowey speedometer, and numerous spares, splendid condition; best offer over £38 taken.—Below.

3½h.p. Minerva, B. and B., handle-bar control, footboards, fast machine, and low position; £12.—Below.

1¾h.p. M.M.C., Chater-Lea, footboards, new back tyre and belt, engine just been re-bushed, very low position; £10, no offers.—All above at French's Motor Works, Tavistock St., Bedford.

The Halifax Motor Exchange

LARGEST REX DEALERS,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

Bargains in Brand New 1909 REXES 1909

The 5 h.p. Twin de Luxe (two speeds and free engine) is the best passenger mount on the market. No thumping and overheating on hills. Change your willing but under-powered single for one of these, and give your passenger a pleasant ride instead of walking exercise.

1909 3½ h.p. Tourist REX	£35	0
1909 5 h.p. Twin Tourist REX	£37	0
1909 5 h.p. REX DE LUXE, two-speed	£48	0

Compare these with 1910 prices.

Cash, Exchange, or Easy Payments.

1910 Twin Tourist REX, nearly new.		
1909 Two-speed Twin REX DE LUXE	£39	0
1909 5 h.p. Twin REX, spring forks	£32	10
1908 5 h.p. Two-speed REX DE LUXE	£35	0
1908 Twin Tourist REX, magneto	£26	10
1908 4½ h.p. MINERVA, Palmer Cords	£18	18
5½ h.p. REX DE LUXE, clutch, handle starting	£22	0
5½ h.p. Twin REX, spring forks	£16	10
1910 3½ h.p. Tourist REX, nearly new.		
1909 3½ h.p. Magneto REX	£29	10
1909 3½ h.p. REX Speed King, soiled	£32	10
1909 3½ h.p. Two-stroke REX DE LUXE, Roc clutch, two speeds, as new	£35	0
1909 3½ h.p. Two-speed DE LUXE, good	£36	0
1908 3½ h.p. Magneto REX, spring forks	£24	10
1908 3½ h.p. Two-speed P. and M., spring forks	£29	10
4 h.p. ROC, magneto, new rubber non-skids	£24	0
2¾ h.p. PHELON AND MOORE, two-speeds	£22	10
3 h.p. BROWN, spray, Watawata	£9	10
3½ h.p. Magneto QUADRANT, spring forks	£24	0
3 h.p. SINGER, V belt, high tension magneto	£16	10
2½ h.p. ALLDAYS, light and low, spray	£11	10
3 h.p. BRADBURY, excellent order	£10	0
1906 3½ h.p. REX, spring forks, M.O.V.	£15	10
3 h.p. ARIEL, light and low, spray	£9	10
4 h.p. STEVENS, handle-bar control, new tyres	£12	10
3 h.p. CLYDE, high tension magneto ignition	£14	10
2¾ h.p. KERRY, light and low, spray	£9	10
3 h.p. M.M.C., vertical, spray, good	£8	10
3½ h.p. REX, 22in. frame	£7	10
3 h.p. HUMBER, spray, powerful	£10	0
2 h.p. QUADRANT, handle-bar control, very low	£5	10
3 h.p. QUADRANT, wants attention	£6	10
1¾ h.p. MINERVA Lightweight, untested	£3	10
2 h.p. RALEIGH Lightweight, vertical	£6	0
2¾ h.p. DE DION pattern, spray	£5	1
2¾ h.p. AUTOMOTOR Tricycle, grand condition	£4	15

Monster List on application. Cash Offers considered.

TYRES.

No advance in prices. We have every size in stock, well bought, and can quote you specially low prices. Try us.

1910 REXES. Special liberal exchanges against second-hand Rexes. Send requirements.

1910 DE LUXE SIDECARS.

Special detachable fittings, no second adjustment necessary. 26 × 2¼in. tyre, art cane or best wicker body. **£5 17s. 6d.** Usual rigid type, art cane, **£4 17s. 6d.** Illustrated pamphlet on application.

1910 Forks to suit all REX machines, **39/6.** Old forks taken in exchange. Pamphlet on application.

8-10 h.p. Twin-cylinder REXETTE Tricar, carries three, water-cooled, two speeds	£27	10
6 h.p. REX Litette, two speeds, water-cooled	£35	0

1,000 1908-1909 Magneto Machines Wanted for spot cash. Full tradevalue given.

MOTOR BICYCLES FOR SALE.

TRIUMPH, 1910, free engine, not run 100 miles; price £46; cause ill-health.—Apply, Malvemore, Henlow, Biggleswade.

4½h.p. F.N., new 1908, handle-bar control, good order, lamp, horn, spares, etc.; £22.—4,552, *The Motor Cycle* Offices, Coventry.

2¾h.p. Alldays, perfect running order, recently overhauled, new front tyre; £8 15s.—Smith, Shrublands, Bury St. Edmund's.

3½h.p. Triumph, delivered June, 1909, all accessories; decided bargain at £35.—Full particulars, Rolant Rutter, Bury St. Edmund's.

GENUINE Bargains.—Rex 3½h.p. motor cycle, two good accumulators, new belt; also Fafnir, 3½h.p., spring forks, new tyres; take £11 each.—Softly, North Rd., St. Ives, Hunts.

5h.p. Two-speed Vindec Special, magneto, spring forks, 26 by 2½ tyres, Whittle belt, in very nice condition, engine as new, fast and powerful; £26.—Wallis, 29, Hills Rd., Cambridge.

N.S.U., twin-cyl., new condition, not been ridden more than 1,000 miles; business man, having no time to ride; inspection invited.—W. W. Amos, Esq., 30, York Rd., Bury St. Edmund's.

WHAT Make Motor Bicycle do you fancy? We can supply and give early deliveries. We have actually in stock new Triumphs, Premiers, and Bradburys, cash or instalments.—Parker and Son, St. Ives, Hunts.

2¾h.p. Twin Fairy, h.b. control, new back Max studded tyre and tube, Druid spring forks; also last year's B.S.A. racing cycle, wooden rims, 14in. sprint tyres; exchange for higher powered motor.—Nunn, Needham Market.

2¼h.p. Minerva engine motor cycle Quadrant, handle-bar control, in perfect order, and ready for touring, 26in. wheels, very low, newly enamelled and overhauled £10; 26in. by 2¼in. back wheel, Clincher tyre and tube, 11s. 6d.—F. Herbert, Groton, Boxford, Suffolk.

4½h.p. Twin Minerva, Chater-Lea fittings and spring forks, oil and petrol gauge, handle-bar control, lamp, stand, horn, watch, in splendid condition, not scratched, trial given; sacrifice, £18 10s.; bought car; also Montgomery flexible sidecar, £4 10s.—S. Felta, 14, Park Rd., Kempston, Beds.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

ARIEL Motor Cycle, Minerva engine, not run over 1,000 miles, almost as new; £13 10s.—Robbins' Garage, Evesham.

1910 3½h.p. Minerva, magneto, spring forks, B. and B., perfect, three weeks old; £31, or offer.—Perrins, 86, Victoria Av., Newport.

3¼h.p. Rex, in good running order; seen any evening after 7, or Saturday afternoon. — Baker, Greenfield Av., Stourbridge.

TRIUMPH Motors, standard, also free engines; delivery from stock; second-hand Triumph motors part payment.—Geo. Clarke, Port Talbot.

5½h.p. Twin Rex, magneto, spring seat, spring forks, nearly new Continental tyres; absolute bargain at £22 10s.—Oliver, Roundstone St., Trowbridge.

ENFIELD, Douglas, Premier (twin or single).—Birmingham and District Agency. Samples on view at Depot, and at Stand 131, of the Bingley Hall Exhibition; trials arranged; present machines taken in part payment; deferred payments if desired; few second-hands.—Colmore Depot, 31, Colmore Row (opposite Cathedral Church).

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

3½h.p. 1909 Rex Tourist, new condition, new Michelin non-skid; £28.—Rowland, Salisbury.

2¼h.p. F.N. shaft-driven Lightweight, 1910.—4,574, *The Motor Cycle* Offices, Coventry.

SWIFT, 3½h.p., two-speed gear, accumulator ignition, chain drive; £9 10s.—Owers, Newbury.

3½h.p. Royal Enfield, Palmers, fast, sound; £12.—Fraser, 52, Nightingale Rd., Southsea.

3½h.p. Minerva, B.S.A. frame, accumulator ignition, in best order, tyres and belt; price £12, or near offer.—Below.

5-6h.p. New 1909 F.N., special tyres, speedometer (Cowey's); what offers?—Below.

3½h.p. Triumphs, 1909, new, from works; what offers?—Below.

3½h.p. Quadrant, magneto, spring forks, new belt, tyres in best condition, Brooks spring seat; £20, or near offer.—Randall, Andover.

DE DION, 2¾h.p., 28in. wheels, spring forks, excellent condition; price £12.—C., c/o Henry Keith, Sunningdale.

2½h.p. Minerva, excellent engine; £6; selling through unemployment.—"Motor Cycle," Coleman's, Newsagents, Trowbridge.

2½h.p. Zedel Lightweight, Lamberjack, in perfect running condition; £8 10s.—Apply, W. Piner, Colnbrook, Bucks.

MOTOR BICYCLES FOR SALE.

2½h.p. J.A.P., nearly new belt, accumulator, and tyres, splendid condition; £10.—Mills, 145, Hughenden Rd., High Wycombe.

1910 Two-speed F.N., purchased new month ago, ridden 60 miles only; £4 worth of extras; £54 10s.—Browne, 10, Thames St., Windsor.

REX, 5½h.p., twin, magneto, Roc clutch, tyres unpunctured cantilever seat, new acetylene lamp; £27 10s.—Crocker, 139, Above Bar, Southampton.

1910 Triumph Motor Cycles; immediate delivery from stock of single and variable speed models.—H. G. Norton and Co., Ltd., Westgate St., Gloucester.

BARGAIN.—3½h.p. Brown, perfect condition, long bars, spring forks, footboards, B100 saddle, very low; approval; £13.—Nicholls, 38, Oxford Rd., Wycombe

2½h.p. Triumph-J.A.P., nearly new, engine, spares, fittings, excellent condition, light, reliable, silent; all particulars by post; price £10.—Burnett, White Hart St., Wycombe.

ROYAL ENFIELD 1910 Lightweight, as new, Dunlops; cost, with accessories, £43, sell £35, or exchange for 1910 3½h.p. machine.—Evans, "Craumere," Cosham, Hants.

3½h.p. Quadrant, 1908, Bosch magneto, with all spares, Clincher tyres, in good condition, machine recently overhauled; £20, or offers.—4,360, *The Motor Cycle* Offices, Coventry.

3½h.p. Tourist Rex, magneto, late 1909, variable pulley, tyres new, two new Shamrock, one new Whittle belt, new Riches detachable tube, separate generator, head lamp handle-bar mirror, spare valves, tools, etc.; £29.—Marshall, Riverside, Chesham, Bucks.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

NYE'S!—1910 Bradbury; £46; exchanges.

NYE'S!—1910 2-speed Humber; £50; exchangea.

NYE'S!—1910 2-speed F.N.; £40; exchanges.

NYE'S!—1910 T.A.C.; exchanges.

NYE'S!—1909 Ariel, magneto, Druids; £23.

NYE'S!—1909-10 3½h.p. Rex tourist; £26 10s.

NYE'S!—1908 Motosacoche, spring forks; £13.

NYE'S!—2h.p. Werner, very low frame, 26in. wheels, plated tank, and fittings; £10 10s.

NYE'S!—1909 twin Rex tourist, as new; £35.

NYE'S!—The nicest firm in London to deal with £9 Leather Lane, Holborn, London. 'Phone, 6299 Holborn.

NYE'S!—1910 3½h.p. Two-speed Humber; exchange wanted; £40.

NYE'S!—1910 3½h.p. Two-speed Humbers; exchanges wanted; £50.

NYE'S!—1910 T.A.C., 4-cyl., exchanges wanted.

NYE'S!—1909 3½h.p. Rex, 1910 improvements; bargain, £27.

NYE'S!—1908 3½h.p. N.S.U., magneto, nearly new; £22 10s.

NYE'S!—4h.p. Lagonda, good order; £10 10s.

NYE'S!—1909 3½h.p. Ariel, magneto, Druids, not run many miles; £23.

NYE'S!—1908 Motosacoche, good order, spring forks; £12 10s.

NYE'S!—The nicest firm in London to deal with—69, Leather Lane, Holborn, London. 'Phone, 6299 Holborn.

F.N., 2¾h.p., good order; reason for selling; trial; £9 —104 Thornlaw Rd., West Norwood.

3h.p. Chater-Lea; £10 10s.; good order.—76, Murchison Rd., Leyton.

REX Twin, Roc clutch; £16 to realise.—39, Harpenden Rd., Manor Park.

£8.—Rex, 3½h.p., new tyre and accumulator.—1, Melville Rd., Stonebridge, Willesden.

LATEST 1¾h.p. F.N., equal new, new back tyre; £18 18s.—Putland, Tunbridge Wells.

3h.p. Clyde, wants new piston; sacrifice £5.—Davies, 1, Wellington Buildings, Bow, E.

F.N., 1¾h.p., first-class condition; £16 lowest.—Marsden, 43, Dartford Rd., Dartford.

TWIN Peugeot, magneto, nearly new; £26.—Aldington, 59, Haydon's Park Rd., Wimbledon.

3h.p. Noble, 26in. wheels, low frame, tyres in good condition; £6 10s.—52, Perry Hill, Catford.

MINERVA, 4½h.p. twin, M.O.V., low position, perfect, £20; also 3½h.p. single, £14.—Below.

BRADBURY, 3½h.p., very fast, £8; also Excelsior, 3½h.p. M.M.C. engine, cash price £7 10s.—60a, Trinity Rd., Upper Tooting.

THE IDEAL
SIDECAR MACHINE.

Shop-soiled 1909 5-6 h.p. Twin REX DE LUXE, Roc two-speed and free engine, handle starting. Our price £48, our price.
This year's pattern will cost you £62.
ALSO a few new 1909 Twin 5 h.p. REX Tourist Models. Our price £37, our price.
ALSO a few New 1909 3½ h.p. REX Tourist Models. Our price £35, our price.

OTHER GENUINE BARGAINS.

3½ h.p. F.N., magneto, handle-bar control..	£19	0
3½ h.p. N.S.U., magneto, handle-bar control	£19	0
3½ h.p. 1909 REX Tourist	£29	0
3½ h.p. 1909 REX Tourist, Rom tyres	£31	0
5-6 h.p. Twin REX, magneto, h.b. control	£20	0
1910 3½ h.p. REX Tourist, brand new ..	£45	0
1909½ 3½ h.p. REX Racer, soiled only	£32	10
6 h.p. Twin REX, spring forks, 26" wheels	£16	10
6 h.p. Twin REX and Sidecar	£20	0
3 h.p. CLYDE, magneto, Druid forks	£15	0
3 h.p. VINDEC, magneto, H.B. control....	£18	0
1910 3½ h.p. PREMIER, twin-cylinder	£45	0
3½ h.p. REX, M.O.V. spray	£10	10
3½ h.p. 1906 REX, M.O.V., spring forks ..	£14	0
3½ h.p. REX, Bosch magneto, fine goer....	£16	0

LIGHTWEIGHTS.

1908 N.S.U. Lightweight, Bosch magneto ..	£17	0
Twin-cylinder FAIRY, very smart.....	£14	0

£5 down SECURES ANY OF THESE. BALANCE 5/- PER WEEK.

3 h.p. Vindec, mag. £16 | Twin Fairy £14
3½ h.p. Rex, mag. .. £16 | 3½ h.p. 1906 Rex,. £14
Push bikes accepted part payment.

BRAND NEW 1909
5½ h.p. O.T.A.V. VOITURETTES,
complete with hood, lamps, tools, and spares, £60 each. Magneto Ignition £5 extra.

6 h.p. REX LITETTE Tricar, water-cooled, two speeds, £35.

FARRAR'S HALIFAX SIDECARS.

Owing to the continued advance in tyres, we shall shortly increase the prices of these splendid sidecars. **Be wise,** and order **now.** Delivery from stock to fit Triumph, Rex, N.S.U., P. and M., etc.
£4 17s. 6d. complete with best tyres.
Twelve months' guarantee. Discount to the trade.

MISCELLANEOUS BARGAINS.

Rigid Sidecar, 24in. wheel	£3	0
" " 28in. "	£3	0
Montgomery Sidecar, cnach-built	£5	0
8 h.p. Twin Rexette Engine, two speeds ..	£12	0
5 h.p. M.M.C. Engine, W.C.....	£5	0
Carburetters—New 1910 Amac, variable jet	27/-	
New 1910 B. and B.	27/-	
New 1909 Amac	19/6	
Old carburetter in part payment.		
Second-hand Longuemare, Minerva, etc	5/6	
Second-hand Brown and Barlow and Amac ..	7/6	
New Premier High Tension Magnetos	59/6	
Midget Prested Trembler Coils	14/6	
Clincher Tubes, all sizes ..... post free	5 6	
New Sidecar Baskets, upholstered	25/-	
New Sidecar Wheels, plated.....	12/6	
Continental Butted Tubes, 26 x 2¼in.....	12/6	
Clincher Butted Tubes, 26 x 2¼in.....	10/6	
Three-note Fanfare Horns.....	7/6	
"Mirrora" Lamps, separate generator	9/6	

WANTED—Good Motor Cycles. Cash waiting.

Farrar's Motor Works,
Square Road, HALIFAX.
Telephone 919.

MOTOR BICYCLES FOR SALE

1909 Triumphs, in first-rate condition, complete accessories; £34.—Below.

1907 Triumph, handle-bar control, an excellent chine; £23.—Below

1906 Triumph, magneto ignition, guaranteed per order; £19.—Below.

1909 Rex, 3½h.p., Tourist, cantilever seat, only rid few times, equal to new; £50.—Below.

1909 Rex, 3½h.p., Tourist, standard machine, with accessories, splendid order; £28.—Below.

1909 Minerva, 3½h.p., magneto ignition, spring fo Amac carburetter, handle-bar control, sev refinements; £25.—Below.

1909 Peugeot-Chater, 5h.p., 2¼in. Palmer cord t F.R.S. lamp, etc.; ideal machine for side work; £20.—Below.

THE Eastern Garage Co. have, in addition to above, a number of good machines at prices ra ing from £7. Please favour us with a visit at 4 Romford Rd., Forest Gate, or telephone, Stratford Telegrams, Egaraco, London.

2½h.p. Douglas, 1910, slightly soiled, highest grad £35.—128, High Rd., S. Tottenham.

4½h.p. 4-cyl. F.N., magneto, hums like a top; £23 128, High Rd., Tottenham.

BRADBURYS. 1910, in stock, £46; Bradbury, 19 model, £36; liberal exchanges.—128, High R Tottenham.

BROWN, 2¾h.p., vertical, perfect condition; £8 1 —128, High Rd., Tottenham. 'Phone, 1982 T tenham.

HUMBERS, 3½h.p., 1910, tourist model, £45; tw speed, £50, in stock; liberal exchanges. — 12 High Rd., Tottenham.

PHŒNIX, 2¾h.p., magneto, two speeds, suit doctor £14 10s.—128, High Rd., Tottenham.

TRIUMPHS, 1910, in stock, £48 15s. and £55; liber exchanges.—128, High Rd., Tottenham. 1982 T tenham.

3½h.p. Rex, magneto, spring forks, fine machine; £2 —128, High Rd., Tottenham.

HAMPSTEAD for Bargains.—Heath Street Mot Works, 5, Heath St. Tel.: 2678, P.O.

HAMPSTEAD.—3½h.p. Quadrant, magneto, handl bar control, splendid order; £18; all accessorie

HAMPSTEAD.—2¾h.p. vertical 1908 Minerva, splen did condition, with all accessories; £11.

HAMPSTEAD.—3½h.p. Triumph, 1909, splendid cond tion, with all accessories; bargain, £35.

HAMPSTEAD.—1910 2¼h.p. two-speed F.N.'s; £40 no extra for easy payments.

HAMPSTEAD.—1910 Rexes, all models in stock; n extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; ex change or gradual payments taken; no extra.

HAMPSTEAD.—5h.p. twin Peugeot, magneto, an spring forks, Osborne four-speed pulley; £16

HAMPSTEAD.—Triumph, 1910, from stock; no wait ing.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4¼h.p., late model, splendid con dition, all accessories; £20, special bargain.

HAMPSTEAD.—F.N., 4¼h.p., latest model, handle bar control, condition splendid, with accessories; £24.

HAMPSTEAD.—Sidecar, best make, brand new, ad justable to any machine; £3 15s.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD.—2¾h.p. 1910 F.N., almost new, with accessories; £33, special bargain.

HAMPSTEAD.—3½h.p. 1909 Minerva, magneto, and spring forks, all accessories; £25.

HAMPSTEAD for Moto-Reve Model A.; in stock; no waiting; no extra for easy payments.

HAMPSTEAD.—F.N., late model, magneto, and spring forks, splendid condition, all accessories; £22.

HAMPSTEAD.—3h.p. Triumph, good order, with ac cessories; £16 special bargain.

HAMPSTEAD.—5h.p. twin Peugeot, magneto, and spring forks, good order; bargain, £16.

HAMPSTEAD.—1909 twin Douglas, splendid condition, with all accessories; £26, a bargain.

HAMPSTEAD.—1¾h.p. F.N., good condition, all accessories; £13; magneto, and spring forks.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexs, Humber, etc.; exchanges or gradual payments.—Rey, 5, Heath St. Tel.: 2678 P.O., Hampstead.

WHITTLES.—Triumph, 3½h.p., 1907, magneto, spring forks, like new; great bargain, £24.

WHITTLES.—Rex de Luxe, 5-6h.p., twin, magneto, Roc clutch, nearly new, unscratched; £26.

WHITTLES. — Minerva, 4½h.p., twin, spring forks; sacrifice £16 16s.—Whittles Motor Exchange, Earlsfield.

3½h.p. Excelsior, Amac, h.b.c., re-enamelled, good condition, £11.—Hill House, North Dulwich.

In answering these advertisements it is desirable to mention "The Motor Cycle."

THE MOTOR CYCLE

Vol. 8. No. 372. May 12th, 1910.

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Subscription Rates: Home, 6s. 6d.; Canada, 8s. 8d. Foreign, 10s. 10d. per annum.

Agents for Australasia: Gordon and Gotch, London Melbourne, Sydney, Brisbane, Perth, Hobart, Launceston, Wellington, Christchurch, Auckland, etc. South Africa: Central Newsagency Ltd.

ADDRESS—20, TUDOR STREET, LONDON, E.C.

The Northern League.

As reported in our last issue, an important meeting of Northern club officials was held in York on Saturday, April 30th, the outcome of which was the formation of a League of Northern Motor Cycle Clubs to conduct Northern competitions and form rules and regulations for those clubs which decide to throw in their lot with the League. Northern club officials consider that their organisations have been left too much in the cold by the governing body—the A.C.U.—except in the matter of the licence and permit fees.

In connection with practically all sports and pastimes there have always been differences of opinion between North and South as to how matters should be regulated. Exactly why this should be it is impossible to say, but the fact remains that it is so. The A.C.U. has certainly done a good deal to conciliate Northern clubs and to draw them into the fold if possible, but so far without any very great measure of success, or the meetings referred to would not have been held, nor would the decision to form a Northern League have been so unanimous. A large number of riders, particularly in the North, seem to think that they ought to be able to work independently of any other body, the bone of contention with the A.C.U. being the right to hold inter-club contests without paying a permit fee to the A.C.U. and without the riders being compelled to take out a riding licence for one open event during the year.

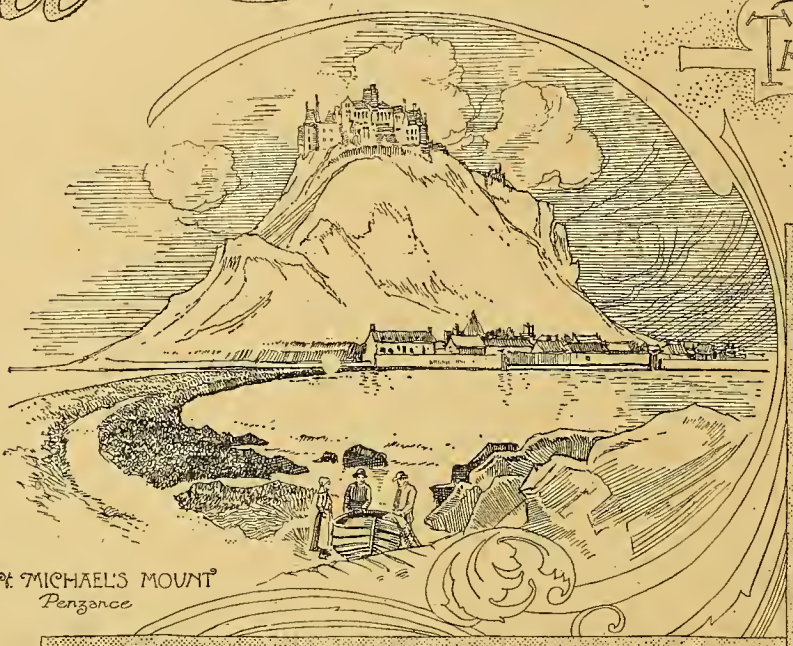
The A.C.U. has announced that in future the licence for one event will be 1s., increasing to 5s. if the rider compete in more than one event during the year, but this concession was too late to help to stem the tide of events. The A.C.U. had made this and one or two other concessions purposely to prevent the League assuming shape, but it could not be expected to pass over the infringement of its regulations with regard to the proclaimed hill-climb at Staxton without loss of dignity and diminution of power. It will be very regrettable if the Northern League does not own allegiance to the Auto Cycle Union in some form or another. We nevertheless trust that the two organisations will work amicably, and that, even if the Northerners cannot see their way to apply to the Southerners for permits and licences, they will at least endeavour to formulate some scheme to enable both bodies to work under the same rules as far as the conduct of competitions is concerned. Their highest aims and objects are identical, and there is no reason why each in its own geographical sphere of influence should not carry on its operations, not only without causing offence to, but in harmony with, the other.

A Car Licence covers a Motor Cycle.

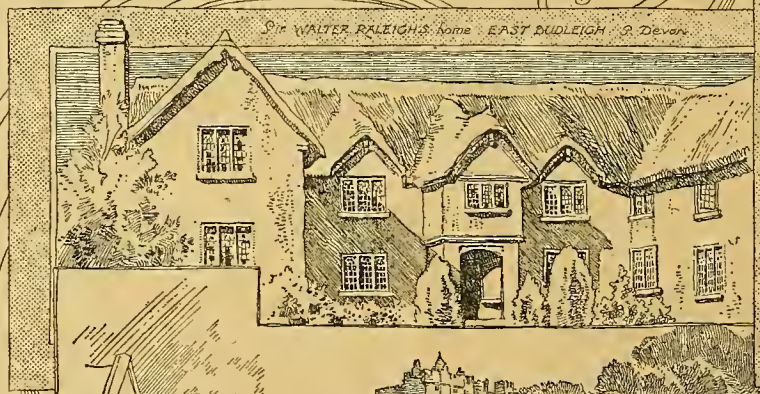
On a recent occasion we received a query from a correspondent to the effect that he had disposed of his car and asking if he could keep one or two motor cycles without taking out a fresh local taxation licence, presuming that the two-guinea licence he had paid would cover the cost of two motor bicycle licences. This query is one we have seen raised before, and we therefore decided to obtain an official view of the position. On making application to the Comptroller of the Local Taxation Licences Branch of the L.C.C. we received the following reply: "I beg to acquaint you that, in the circumstances you mention, the licence would cover one vehicle only, the rate of duty in respect of which does not exceed two guineas."

Where to go at Whitsuntide: No. 6

The West Country

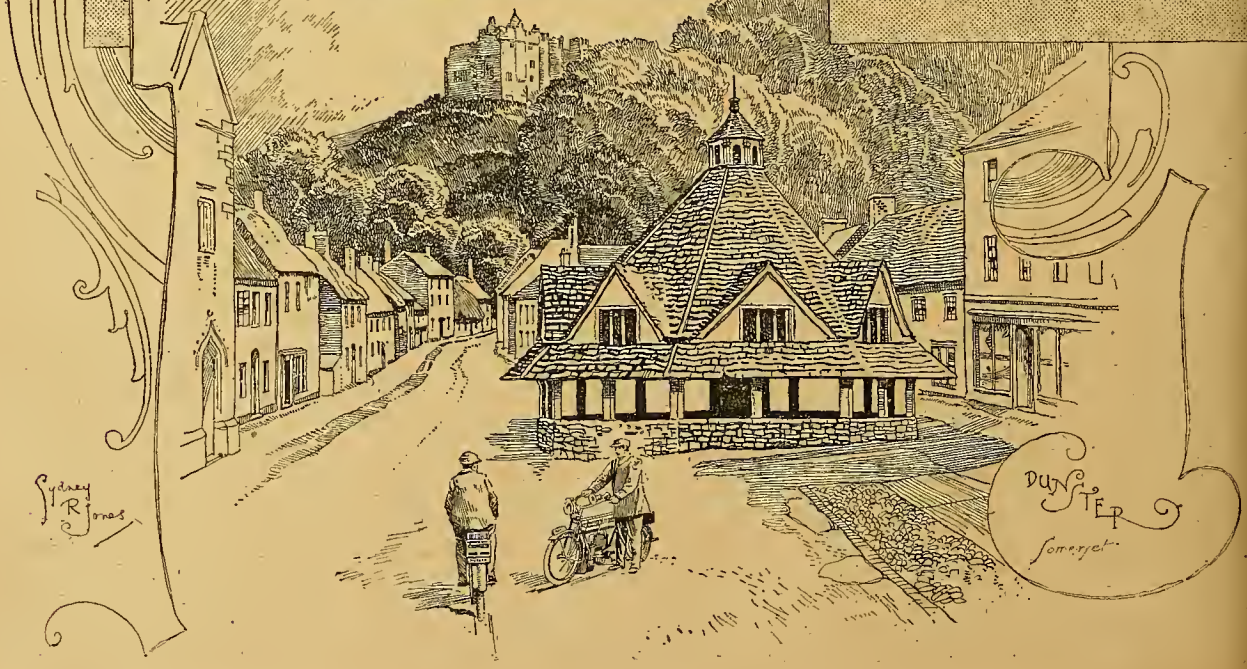


ST. MICHAEL'S MOUNT
Penzance



SIR WALTER RALEIGH'S home : EAST BUDLEIGH : Devon

CLOVELLY
Devon



DUNSTER
Somerset

Sydney R. Jones

Occasional Comments

"By Ixion"

1910 Improvements—Stamina and Efficiency.

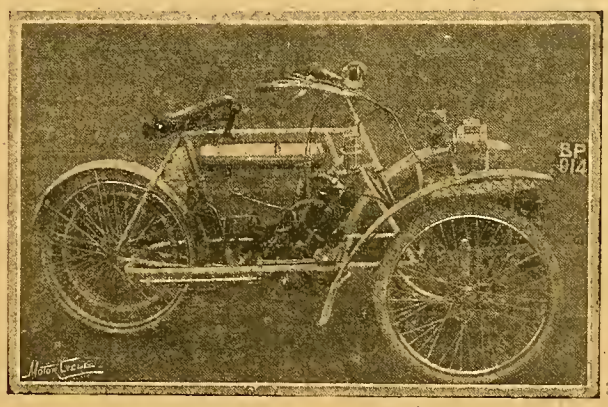
At the last Stanley Show I heard several really clever critics complaining that the exhibition contained "nothing new"—just a range of furbished up 1909 models, with a few new talking points of no very special importance. I was half inclined to agree with these carpers, but since then I have sampled quite a little fleet of the despised 1910 models, and my opinions are now revised. From a superficial standpoint the 1910 model may in many cases very closely resemble its predecessor of last year, but when we come to *ride* them we instantly discover a marked difference. For example, many 1909 3½ h.p. tourist mounts had an evil and incurable habit of knocking. When they slowed up on a bad hill, "clank-clank-clank" hammered the engine, and not infrequently such metallic clangour was aroused under far less arduous circumstances. But the alleged duplicate of 1910 is usually guiltless on this count. The same applies to the "dying away" habits of 1909. Some cheery souls are wont to open the throttle rather liberally along deserted stretches of straight road. In 1909 the machine would exact its own penalty for such illegal driving by refusing to ascend quite an insignificant incline after a few miles of this bucketing. The 1910 patterns, as I am credibly informed by the miscreants who so handle them, will romp up Birdlip after a ten-mile scrap. Again, the 1910 engine has a better hill-climbing compass than its sister of 1909; it goes farther and faster up the few forbidding precipices that still make a motor cyclist feel nervous. Altogether, we must admit that last year has produced some very real and vital improvements in engine design. Let us hope 1910 will push the motor bicycle a step further towards the heights of ideality, even if no startling novelties come to light.

Congratulations to the A.C.U.

The A.C.U. got rather a rough handling both from the trade and amateurs over the conduct of the first Quarterly Trial this year, and now that it has run off the second event more efficiently, it must receive our congratulations. At the same time, this trial has ceased to be of any real value as a criterion of reliability. Even if we credit it with perfect management, it is too short to hall-mark the machines of 1910. Our standards have outgrown such petty little distances, and the hill-climbs are infantile; who considers Dashwood or Rectory a real climb nowadays on summer surfaces? The trial may continue to serve a certain purpose of moderate value. It is a good school for novices in trial riding, and it encourages faint hopes of unknown machines, which make their first bow to the public therein. If the trade demand a reduction in the number of trials, there are few open trials we could spare with less regret. But so long as fifty or sixty amateurs are willing to use it for practising purposes, there is no radical objection to its survival. I think these amateurs who are now the backbone of this trial have a right to expect that the turns shall be properly marked; it is hard lines when a non-stop certificate is sacrificed because the organisers have neglected to place a huge arrow in a sensible position at an awkward or crucial turning.

Automatic Carburation.

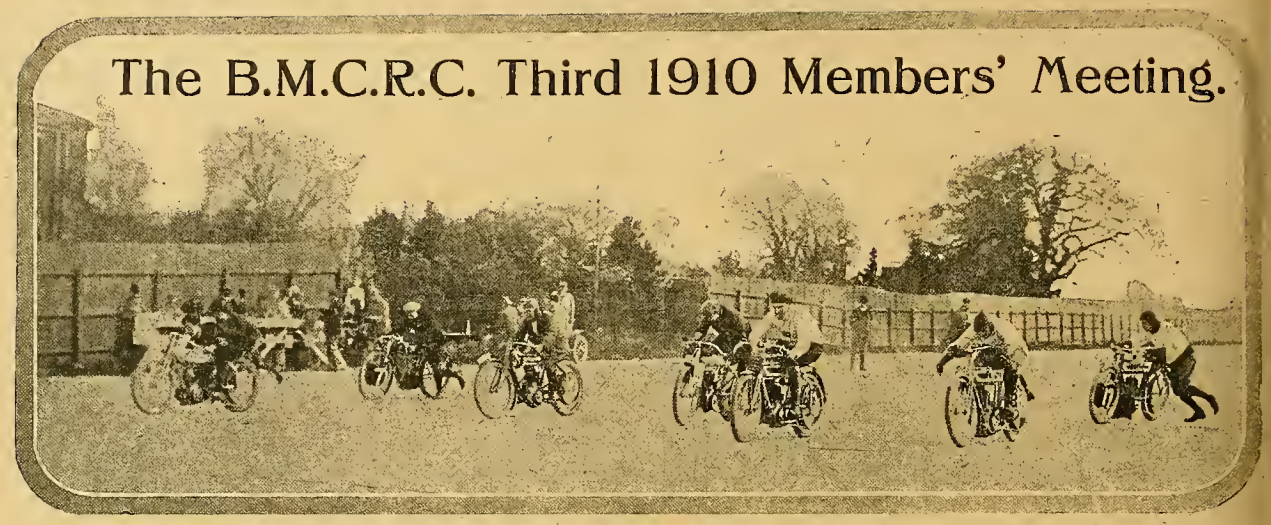
A firm of carburetter patentees write taking objection to my eulogy of the triple-jet carburetter as employed on cars. They assert with much truth that the automatic single jet is enjoying a greater vogue than the automatic triple jet. This is true. It happens to be true because a triple-jet carburetter requires very skilled adjustment. This adjustment is too laborious for most busy manufacturers of carburetters to attempt, varying as it does with each of the hundreds of different engines which in a year pass through their hands, and it is too delicate a task for the average owner. I



Another rejuvenated motor cycle belonging to F. H. Paine, of Walberton, near Arundel. The tricycle is a combination of a two pattern 4½ h.p. Excelsior with forecar attachment minus front seat. A Ruthardt magneto and B. and B. hand-bar controlled carburetter have been added besides other up-to-date adjuncts.

have been experimenting with automatic carburetters for some time past, though I am not financially interested in any of them, and after "two years' hard" at the game I regard the automatic triple jet as slightly more efficient than the automatic single jet for car work, though less simple, and therefore less practicable. But I do not press the claims of the triple jet for motor cycles. Even greater success is being achieved by single-jet automatics on cars, such as the Zenith, White and Poppe, and Claudel-Hobson. There is a great future for motor cycle carburetters in the same field. Yet a large firm can easily employ a triple jet on motor cycles, if they wish to. These patent carburetters are sold as separate accessories in the car market; hence the bother about adjustments. A large motor cycle factory, turning out fifty or one hundred machines a week, would have no such trouble. The same series of jets and choke tubes would suit practically every engine in the output without any finicking about.

The B.M.C.R.C. Third 1910 Members' Meeting.



Competitors starting for the One Hour Tourist Trophy Race.

WHEN the meeting started, at 2.30 on Wednesday, the 4th inst., the weather was fine, but a strong breeze blew down from the members' hill and black rain-laden clouds loomed in the distance to windward. The first race was the all-comers' handicap for all classes of motor bicycles, the cubic capacity of the cylinders of which does not exceed 1,000 c.c. First prize, the club's gold medal; second prize, the club's silver medal; third prize, the club's bronze medal. Distance, 8 miles 269 yards. Starters allowed. The following competitors took part:

Rider and machine.	Cyls.	Bore and stroke.	S-stripped T-touring.	Start M. S.
C. R. Collier (Matchless) ...	2	85.5 × 85	T	Scr.
H. V. Colver (Matchless) ...	2	85.5 × 85	T	Scr.
G. Lee Evans (Indian) ...	2	82.5 × 93	S	Scr.
H. H. Bowen (Bat)	2	85.5 × 58	T	0 33
H. A. Collier (Matchless) ...	2	85.5 × 58	T	0 33
C. E. Bennett (Indian) ...	2	71.5 × 82.5	T	0 33
W. O. Bentley (Indian) ...	2	70 × 82.5	S	0 39
M. Geiger (V.S.)	2	75 × 75	S	1 3
F. A. McNab (Trump-J.A.P.)	1	85.5 × 85	T	1 33
J. Gibson (Trump-J.A.P.) ...	1	85.5 × 85	T	1 33
R. C. Griesbach (Triumph) ...	1	84 × 86	S	1 36
W. Chitty (Martin-J.A.P.)...	1	85 × 60	S	1 48
A. Maitland (Trump-J.A.P.)	1	85.5 × 85	S	2 42
E. Gwynne (Triumph ...	1	84 × 86	T	2 42
G. L. Fletcher (Douglas ...	2	60 × 60	T	4 30

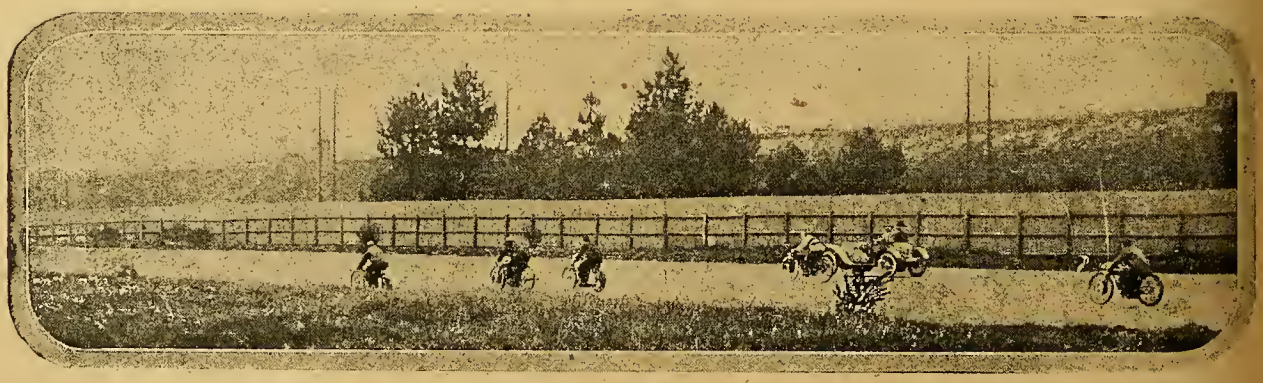
This race, as was the case with all others which were run on Wednesday, started and finished at the fork—quite the best arrangement. At the end of the first lap the men passed in the following order: Fletcher, Gwynne, Maitland, Gibson, Griesbach, Chitty, McNab, Geiger, Bowen, Bennett, H. A. Collier, Lee Evans, C. R. Collier, and Colver. In the second lap Gibson led, and was followed by McNab, Griesbach, Gwynne, Fletcher, Bowen, Chitty, C. R. Collier, Geiger, Lee Evans, Bennett, Maitland, and Colver. At the finish Bowen was leading, but his rear cover blew off and bent the mudguard double. Then Collier led the throng, and, for some reason best known to himself, went careering down the straight. Result:

1. J. Gibson (3½ h.p. Trump-J.A.P.)
2. F. A. McNab (3½ h.p. Trump-J.A.P.)
3. G. Lee Evans (7 h.p. Indian).

and the rest as follows: Griesbach, Bennett, Geiger, Colver, Gwynne, Chitty, and Maitland. Time, 8 min. 29⅘ sec. net. McNab's machine was fitted with the Hellesen-Hunt dry battery ignition and plain coil.

A Novel Event—The Sprint Race.

The next event, which took place at 3 p.m., was a sprint race over a distance of about a mile, in which the competitors were classified as follows: Classes A and B, engines not exceeding 350 and 500 c.c.; Class C, engines not exceeding 500 c.c.; Class D, 750 c.c.; Class E, 1,000 c.c. The men were allowed a flying start, and rode for some distance till they caught up the official car, dressed in line in close formation, and at the sound of Ebblewhite's syren, started. Divided as they were into classes, the members in consequence were almost equally matched in each class, but contrary to anticipation the finishes were disappointing. The winners were: Classes A and B, H. Martin (one-cylinder A.S.L., 85 × 60, 340 c.c.); Class C, 1 Gibson, 2 McNab (Trump-J.A.P.'s, same machines as before); Class D, C. E. Bennett (two-cylinder Indian); Class E, G. Lee Evans (two-cylinder Indian). The first prize in each class was the club's silver medal.



The Sprint Race. Competitors jockeying their machines to get in line with the timekeeper's car.

The B.M.C.R.C. Third 1910 Members' Meeting.—

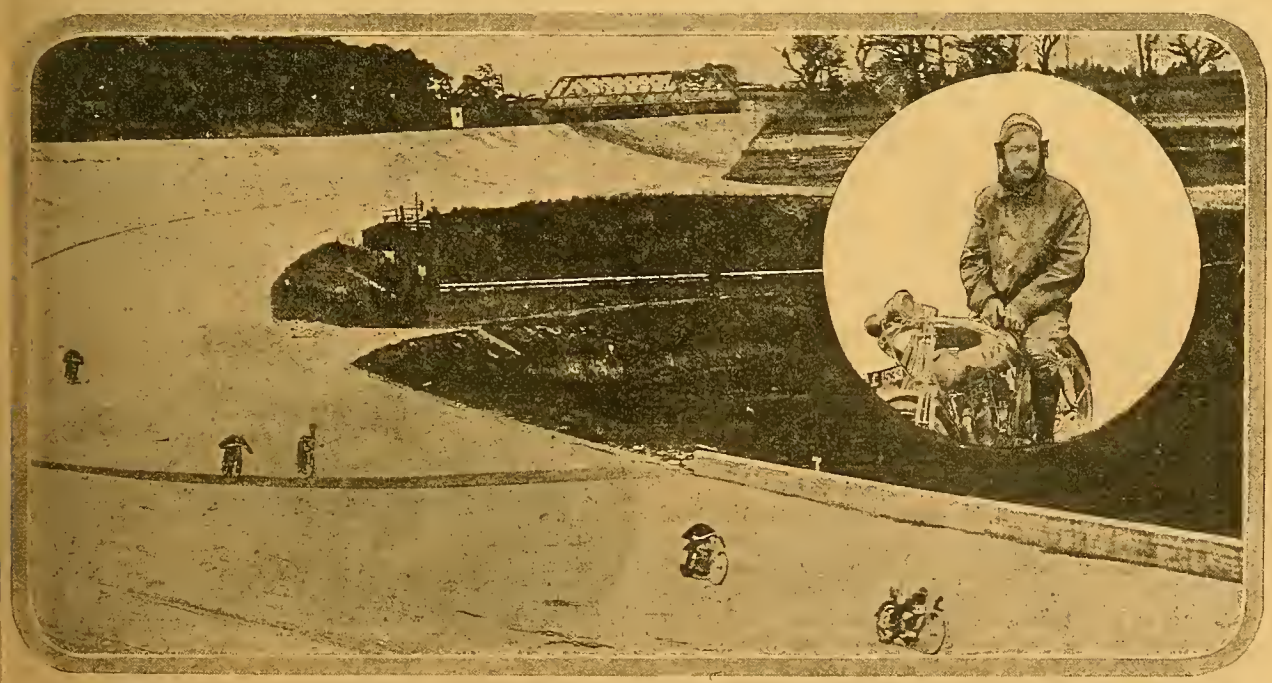
The *pièce de résistance* of the meeting was the hour T.T. race at 4 p.m., in which the full T.T. conditions, except as regards the weight of tools carried, were enforced. First prize, silver cup, presented by the club; second prize, the club's gold medal; third prize, the club's silver medal; and certificates to all who finished. Unfortunately, several well-known riders failed to start. Seven in all took part in the race, these being:

	Cyl.	Bore Stroke	c.c.
H. V. Colver (Matchless) ...	2	85.5 × 58 ...	666
C. E. Bennett (Indian)	2	71.5 × 82.5 ...	662.5
M. Geiger (V.S.)	2	75 × 75 ...	663
J. F. Crundall (Humber) ...	1	85 × 88 ...	499
A. Oberländer (N.S.U.)	1	85 × 88 ...	499
F. A. McNab (Trump-J.A.P.) ...	1	85.5 × 85 ...	488
J. Gibson (Trump-J.A.P.) ...	1	85.5 × 85 ...	488
E. Gwynne (Triumph)	1	84 × 86 ...	476

It was not announced till the actual start that Lee Evans was to be a non-starter, so several of the very fair number of spectators were anxious to back him. Tom Tyler, the bookmaker, who is quite a feature at these meetings, would only give 2 to 1, a price which was not at all attractive, and as an excuse continued to shout, much to everyone's amusement, "2 to 1 Evans! 2 to 1 Evans. Certain to win. Beat a motor car once, he did!" Colver's starting price was 4 to 1, and McNab's 6 to 1. After several showers of rain the weather cleared for the start, which took place at 4.15. At the end of the first lap Colver led by a long distance, while Bennett, Gibson, McNab, and Geiger followed in close order, then came a gap, and Crundall and Oberländer brought up the rear. In the second lap Oberländer lapped Crundall. In the third lap Colver passed with his stand trailing on the ground, to which he pathetically pointed. In this lap Gwynne retired with a broken valve. In the fourth lap Gibson had valve trouble and did not restart till the seventh lap, retiring in the fifteenth. In the fifth lap the order was Colver, Gibson, McNab, Geiger, Oberländer, Crundall, and in the next round Colver stopped, fastened up his stand, and was in hot pursuit of Bennett in next to no time. Only for one lap did Bennett hold first place. In the ninth lap Bennett stopped. For the next few rounds the following order: Colver, McNab, Geiger, Oberländer, was maintained, till in the fourteenth lap Colver stopped for oil and gave McNab the lead. Rain poured down in torrents, and Colver rode with his hand before his face. In the fifteenth lap Geiger retired owing to a broken petrol pipe. McNab was now leading by a long way, while Colver going well now was in hot pursuit,

J. Gibson (3½ h.p. Trump-J.A.P.), winner of the handicap event. This is the machine he will ride in the T.T. Race.

and Geiger, Oberländer, and Crundall followed. The excitement was intense as McNab was soon hard pressed. At the twentieth lap Colver was on his rival who led by 1s., and on the next lap passed him in a deluge of rain. Distances covered: (1) H. V. Colver, 55 miles 720 yards; (2) F. A. McNab (who put up a splendid race), 55 miles 550 yards; (3) A. Oberländer, 50 miles 45 yards; (4) J. F. Crundall, 47 miles 252 yards.



The One Hour Tourist Trophy Race in progress. J. Gibson leading, closely followed by Geiger, McNab, Bennett, and Colver. H. V. Colver (5 h.p. Twin Matchless) beat F. A. McNab (3½ h.p. Trump-J.A.P.) by 170 yards only. Inset, the winner, with his T.T. mount.

A FORECAST OF THE T.T. RACE.

THERE is obviously going to be what the north-country soccer enthusiast would call a "grate fite" for the Marquis St. Mars trophy on May 26th. Fancy the A.C.U. having to limit the entries—and ninety machines being the limit—when we can remember what a job the A.C.C. had a few years ago to rake up *three* motor cyclists with racing machines to fight for old England in the International Cup. Now the cream of the dare-devil amateurs are mustering and tuning for the Isle of Man, and, as for good professional riders, one or two firms would give a great deal to find one unemployed; there is a great dearth of ten stone men with iron nerves, steel wrists, and the gifts of an expert mechanic.

A Review of the Teams.

Then look at the teams! One's eye runs down the list, and pauses at many an item. What do you think of three twin Matchless machines, with the two Colliers and Colver up—invincible trio. The father of the firm never worries if one of them breaks a piston and another bursts a tyre, for he knows that the survivor will nobly carry the credit of Plumstead. Here is a winner, for sure. But, wait a bit; here are *twelve* Rexes, with a big factory behind them, and amongst their jockeys Godfrey, the most daring midget of the entire bunch, with urbane Applebee, Sproston the apostle of pluck, the two Yorkshire cracks Scriven and Mackay, and seven other staunch henchmen, if mischance befalls the first string.

Or, again, Triumphs—the machine that was always good, and gets a little bit better every day—three times three of them, with cute Jack Marshall at the helm. Beaten he was last year; 750 c.c. was too tough a proposition for 500 c.c.; yet if his engine could have stood the racket for an extra thirty miles he would have shaken the big twins up to the very finish, and might even have snatched a narrow victory. This year he is certain to be a few miles faster in every hour. Can the twins say as much with a drop of 80 c.c. in their capacity? If accident overtakes them, Newsome and Creyton are richer in experience than they were, and their 1910 engines will stand more driving than the 1909; behind them are a small fleet of first class amateurs—Witham, who does sixty an hour on Brooklands; Adamson, who can climb Amulree till the clouds roll by, with a hot engine all the time; McMinnies the Dark Blue; and several more.

Wants to Win a Dry Race.

Then come the vermilion Indian crew from the land of the Stars and Stripes. If the roads are wet and dirty, this crowd should have things all their own way, for few of the belt-drivers will get round ten times non-stop as the chains are expected to do. Let's hope for a fine day, or the race may peter out disappointingly, and Wells wants to win a dry race if at all.

Scarcely a man in this team but has shown his power to tune by doing sixty-five or so in a sprint, and several of them have come very near the complete sixty in the hour. It will be a good combination that finishes ahead of the leading Indian when the course is closed, and the tailed out unfortunates are flagged off the road. Nor are we through all the threatening contingents yet.

Who can afford to ignore four twin Bats, with Dayrell, Bowen, and the two Bashalls up? A *leetle* spice too much daring here, if anything; it might be a case of "let the engine have its head, and chance getting round the corner"; but this quartette are a year or two older, and have a tumble or two in their memories. There are bigger impossibilities than that they should top the list.

Dark Horses.

Lots of them. Stanley, on the Premier, was only fractionally less dangerous than Jack Marshall last year, when he was a new man on a new machine. B. V. Jones is a finisher every time, and has put on a lot of speed—eighth last year, wasn't he? McNab, the ponderous Mercury; two Scotts, quit their mark like greased lightning, and the easiest jiggers in the race to sit, if they can keep going fast all through their jocks will be fresh as paint after ten laps.

Rumour says the new Humbers—chain-driven, by the way—are presently going to teach all the old hands something new in design; Crundall and Yates to sit them, men who were racing, aye and invincible, too, when some of the entrants were in their cradles; Reed, who won the twin-cylinder class once, and thinks his turn is about due again; Norton, technical expert, and

E. B. Ware on his 8 h.p. twin-cylinder King's Own-J.A.P. The machine is chain-driven and fitted with a F. and M. two-speed gear—unusual fittings for such a powerful racer. Ware rode at Brooklands on April 2nd.

A Forecast of the T.T. Race.—

most indefatigable of sportsmen; Harry Martin, cushioned by air springs from the cruel potholes, and many another. Pick the winner? Well, I think not. "If 'ifs' and 'ands' were pots and pans," I might. If it is wet, keep your eye on the Indians and two-stroke Scotts; they will come away in a bunch on sloppy roads, I fancy; if so, they should be hunted home by a few survivors of the belt-driven brigade, who dodge transmission stops until the seventh or eighth lap, and possibly one or two belt-drivers might even then press them right through.

Single v. Twin Cylinders.

In no case do I regard a single-cylinder win as really probable. The entries of singles and twins are so large that luck ought to be levelled up between them. Good men on both types ought to come through without accident or trouble. Quite apart from personal fads, we have two facts to support the expectation of a twin-cylinder win. The Matchless firm have chosen to enter three twins, instead of a mixed team—that alone is tolerably eloquent. Secondly, in all T.T. events at Brooklands the single cylinder has been outdistanced when the race has been prolonged. A single-cylinder T.T. with a track gear of, say, 3½ to 1 can undoubtedly cover a single flying mile on the flat almost as fast as the T.T. twins; but it cannot live with them for an hour.

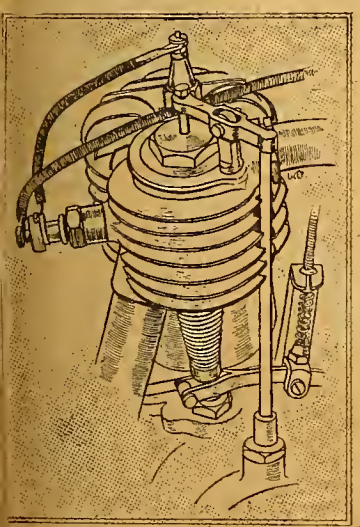
Comparisons of Speed.

In the B.M.C.R.C. hour T.T. race in March several Indians covered upwards of fifty-five miles, but the single-cylinder Bats only managed fifty-four miles, and the Triumphs forty-eight. Multiplying by three, to get near the Manx distance, the twins would win by ten miles or so. Actually they will not, because only short patches of the Manx course are suited for them to utilise their undoubtedly higher speed capacity. But I am convinced that only a perfect holocaust of bad luck can prevent a twin-cylinder win, and I prefer to regard the singles as fighting out a separate battle among themselves. Given dryish roads, there should be a battle royal between five or six twin-cylinder machines for the leading places, and behind them a rather smaller band of singles, tolerably close up, may be expected to wage an equally exciting struggle of even greater general interest. KIRK MICHAEL.

TOURIST TROPHY MODELS.

THE REX SINGLE AND TWIN-CYLINDER MACHINES.

TWO models—a single-cylinder and a twin—have been entered for the Tourist Trophy Race by the Rex Motor Mfg. Co., Coventry, and several of each will take part in the race. The single-cylinder engine with a bore and stroke of 84½ by 89 mm. is practically the ordinary standard model, but the twin-cylinder embodies a number of new features. The most prominent amongst these is the arrangement of the valves in the engine; the inlets, instead of being side by side with the exhausts, are inverted over the exhausts, and are worked by an overhead rocker and tappet, as shown in the annexed sketch. The inlet cam is mounted upon an extension of the shaft which carries the exhaust cam, the timing gear box having been widened for this purpose. This illustration shows how large are the radiating fins with which the valve chamber has been provided, and the neat arrangement of the exhaust and inlet pipes leading hereto. The cylinder casting with which the valve box is integral deserves special mention, not only on account of its neatness, but also for the fact that there seems to be no surplus metal anywhere

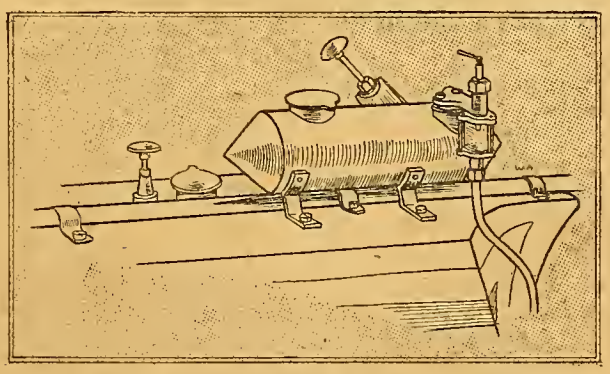


One cylinder of a T.T. Twin Rex, showing the exhaust and inlet motion and Lodge double-pole sparking plug.

It will be noticed that Lodge double-pole ignition is employed, a two-pole plug being placed in the side of the valve box, and an ordinary plug in the cylinder head.

The engine has undergone considerable modification in point of cylinder dimensions from the standard twin model, and to comply with the regulations the bore and stroke of this T.T. machine are 77½ by 71 mm. respectively. The behaviour of this engine will, no doubt, be watched with interest, especially in conjunction with the double pole ignition.

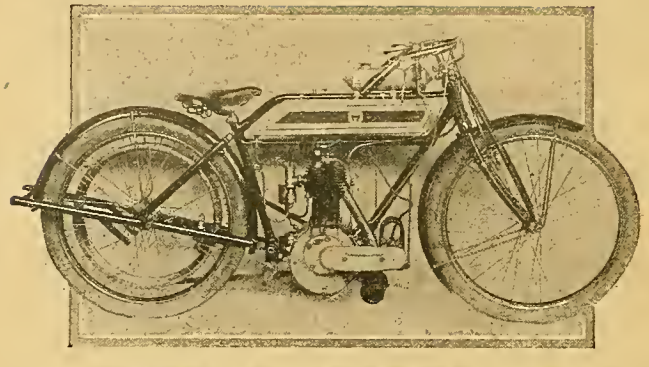
As might have been expected, the reciprocating parts have been made extremely light so as to permit the



The torpedo lubricating oil tank on the Rex T.T. models.

engine to run up to a high rate of speed. The pistons are of cast-iron, and are a fine piece of work. Two wide rings only are used, and above and below these oil grooves are formed. The piston head is considerably domed, thus allowing the maximum amount of metal to be machined away without impairing its strength. The gudgeon pin is tubular, and is made

Tourist Trophy Models.—



3½ h.p. single-cylinder T.T. Rex. The cylindrical tank on the top tube is for lubricating oil, and permits of increased petrol capacity.

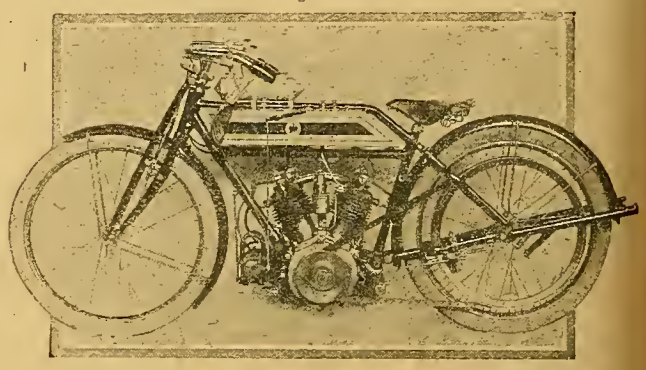
slightly taper, so that it fits securely in position without the aid of any other locking device.

The connecting rods have also been considerably lightened. A notable feature is the length and diameter of the big and little end bearings and the manner in which they are assured of lubrication. The big end has grooves cut right through the connecting rod boss and its brass, so that the crank pin receives a supply of lubricant not only at its ends but also at two intermediate places. At the little end a single groove is cut and serves the same purpose, but in this case an auxiliary hole is bored through to the bearing at each side of the connecting rod, so that it receives oil from below as well as from above.

No pains have been spared to make the lubrication arrangements as perfect as possible, and very thoroughly they have been carried out. First of all, the piston gets a certain amount of lubrication through the inlet pipes in the usual Rex manner. For this purpose a pipe from the crank chamber is led up to the mixing chamber of the carburetter, so that the suction of the engine draws in a certain amount of oil together with the mixture. As it has been found necessary to enlarge the petrol tank in order to carry a sufficient supply of fuel, the lubricating oil is carried in a separate torpedo-shaped tank placed above the petrol tank, and at its forward end. From this oil is supplied to the engine mainly by means of the drip feed arrangement on the right-hand side, or, in case of emergency, by the ordinary plunger pump, which is on the left.

The question of transmission has not yet been settled, but we understand the Rex Co. have been, or are still, carrying out extensive tests with regard to the relative merits of chain and belt drive, and will not decide which to use until trials have been made on the course and they have proved to their satisfaction which is the faster.

The machine is on standard Rex lines, with the exception of the points dealt with above, and has the appearance of a fast and at the same time a light and handy mount.



Twin-cylinder T.T. Rex. The engine has mechanically-operated overhead inlet valves and Lodge double-pole ignition.

WHIT-MONDAY EVENTS AT BROOKLANDS.

Following are the entries for the two motor cycle handicaps at Brooklands on Whit-Monday:

2.20 p.m.—THE MAY HANDICAP.

Cylinder capacity between 500 and 1,000 c.c. Distance about 8 miles.

	Bore and stroke.	Cyls.	c.c.
H. H. Bowen (Bat)	85½ × 58	2	666
B. Yates (Humber)			
A. J. Moorhouse (Indian)	82½ × 93	2	994
H. G. Partridge (N.S.U.)	75 × 90	2	808
J. P. Le Grand (Rex)	77½ × 70	2	670
W. E. Cook (N.L.G.)	80 × 99	2	995
H. Parker (N.L.G.)	80 × 94	2	945
A. Oberländer (N.S.U.)	80 × 99	2	995
R. T. Exshaw and W. H. Bashall (N.L.G.)	84 × 90	2	998
F. H. Arnott (V.S.)	75 × 75	2	663
A. G. Fenn (Indian)	70 × 83	2	679
H. V. Colver (Matchless)	85½ × 85	2	976
H. A. Collier (Matchless)	85½ × 58	2	666
C. R. Collier (Matchless)	85½ × 85	2	976
J. T. Bashall (Bat)	85½ × 58	2	666

3.25 p.m.—THE WHITSUN HANDICAP.

Engines up to 670 c.c. Distance about 5½ miles.

H. H. Bowen (Bat)	85½ × 58	2	666
W. Dewar (Triumph)	84 × 86	1	477
B. Yates (Humber)			
A. Brunton (New Century)	76 × 76	1	349
A. H. Wilkie (Triumph)	85 × 88	1	499
H. Shanks (Kingfisher)	85 × 60	1	340
H. Hunter (Triumph)	85 × 88	1	499
G. F. Hunter (Triumph)	85 × 88	1	499
F. C. Wood (N.S.U.)	85 × 88	1	499
R. C. Sykes (Quadrant)	76 × 76	1	349
F. C. Broome (F.N.)	48 × 57	4	413
F. W. Applebee (Centaur)	85 × 87	1	493
W. A. Jacobs (Rex)	84½ × 89	1	499
J. P. Le Grand (Rex)	77½ × 70	2	670
Capt. Sir R. K. Arbuthnot, Bart, R.N. (Triumph)	84 × 86	1	477
H. V. Colver (Matchless)	85½ × 85	2	976
W. E. Cook (N.L.G.)	85 × 85	1	482
W. H. Bashall (Bat)	85½ × 58	2	666
A. Oberländer (N.S.U.)	52 × 74	2	314
F. H. Arnott (V.S.)	75 × 75	2	663
R. T. Exshaw (N.L.G.)	85 × 85	1	482
A. G. Fenn (Indian)	70 × 83	2	638
H. A. Collier (Matchless)	85½ × 58	2	666
C. R. Collier (Matchless)	85½ × 58	2	666
Wm. Nichols (N.S.U.)	52 × 74	2	314
F. A. McNab (Trump-J.A.P.)	85 × 85	1	482
A. C. Maitland (Trump-J.A.P.)	85 × 85	1	482
F. W. Barnes (Zenith-Gradua)	85 × 85	1	482
J. T. Bashall (Bat)	85½ × 58	2	666

THE MOTOR CYCLE SPRING ISSUE and T.T. SPECIAL NUMBER

On sale everywhere, Thursday, May 26th. 1d. as usual.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

A Good Liver Stirrer.

[4751.]—In reply to letter No. 4737, I have had sufficient acquaintance with horsemanship and motor cycling to assure "India" that he will find the latter little, if any, inferior to the former as a "liver stirrer." On a good machine the vibration is negligible. I have ridden a 5 h.p. twin P. and M., two-speed gear, Druid spring forks, for three years, and have done about 150 miles in the day without undue fatigue. I am 55, weigh about 14 stones, am a literary man, and find that nothing "stirs my liver" better than a good run on the motor cycle.

AB 668.

The Auto-wheel.

[4752.]—What has become of the Auto-wheel, which, at the time of the Stanley Show, numerous journals thought had solved all sorts of motor cycle difficulties? It reminds me of some daily newspaper articles a few years ago advocating shaving by means of a piece of paper after applying some sort of mixture. We were told that it would soon be universally used, and leave the face as smooth as alabaster. I have patiently waited for it, but it still seems a long way off.

C. BRIGGS.

Scouting on Motor Cycles.

[4753.]—I have done a little bit of this. My greatest practical difficulty occurred when riding along a narrow road—I met an enemy's scout practically face to face. It needs a smart rider to turn round and get away without being captured. On the other hand, to leave one's motor cycle and walk some distance away is also open to objection.

Can any of your military readers tell us what to do?

SCOUT.

[In case of real warfare both parties would be armed with revolvers and the one who got away without being captured would be the better marksman.—ED.]

Increase of Speed on Partially Raising the Exhaust Valve.

[4754.]—With all due respect to the one who signs himself "The Colville Motor Works," I thank him for the exact copy of an article which appeared some time back in *The Autocar*. I won't try to contradict the explanation arrived at by scientific investigators, viz., that the valve has a tendency to bounce off its seating and so upset the incoming gas; but why not allow for the tendency to bounce (by setting timing), so that inlet valve commences to open when piston has travelled an eighth of an inch down on the induction stroke? By that time the exhaust valve will be firmly on its seating and allow incoming gas to be sucked in without being upset by the bounce of exhaust valve.

PONY.

[4755.]—In the issue of April 28th "Pony" says, "If I will experiment with my engine by varying the timing to suit the engine," the exhaust lifter peculiarity "should" stop for good. I hope "Pony" won't be cross, but either by accident or design the makers managed to time my engine correctly; at any rate it is now two years and eleven months since I fixed the spring which prevents the lifter doing a jig, and the peculiarity "has" stopped absolutely. "The Colville Motor Works" mention the valve bouncing theory, but if "modern academic investigation" is as simple and infallible as they suggest, I shall expect to hear that the man who coaxes his engine round Brooklands at the fastest rate will be found to have a Bowden lifter or a dashpot fitted to the inlet valve, as well as to the exhaust valve, as undoubtedly a partially opened valve would affect the engine more on the compression stroke than on the induction stroke, and incidentally the valve bouncing theory becomes one of the possible explanations of the blow-back peculiarity mentioned in "Ixion's" A Puzzle or a Poser? but, of course, this is merely "surface surmise" on my part.

Your correspondents assume that their respective explanation of the valve raising phenomenon is conclusive in all cases. I should not care to go quite so far, as I think that in different engines entirely different causes may show precisely similar symptoms, but I can vouch for cause, effect, and cure in the case I quote.

WHITTLESHIP.

Delay in Execution of Orders.

[4756.]—"Disgusted" in his letter [4730] deserves the thanks of all motor cyclists for drawing attention to a state of affairs which is notorious; one might almost say scandalous.

Last season I returned my machine to the makers for overhauling, and received it back—after much correspondence and many promises—in seven weeks. Three weeks ago I ordered a new mudguard, and am still waiting for it. But by far the most annoying thing is the neglect of one's letters; one would think that a man who had bought a £50 machine and would probably buy again was worth a little attention. The manufacturers' idea seems to be to sell a bicycle and then the purchaser may go to the dence. Let us hope, with your assistance, makers will mend their ways, and realise that these small orders are often of vital importance to the sender.

CHARLES LYALL.

Hill-climbs and Other Matters.

[4757.]—As one who lives in the neighbourhood of Sutton Bank, and who witnessed the contests there on Easter Saturday, I could not help feeling the futility of it all. This is a grand district for making one think out the best methods of getting the best use out of a motor cycle; there are much worse gradients than Sutton Bank within five miles of it *which cannot be rushed;* they are not so long, it is true, but far more twisty and lumpy, inviting bad spills in cart-ruts and gutters running across the road.

Wherever the best scenery is to be found there also one generally finds the stiffest and often roughest hills such as described in the issue of April 7th, "A Jaunt in the North Riding." Now, it strikes me as a pity that when one starts out on a pleasure jaunt to have to do a turn of "hard labour," such as the riders in the above article had to do up Wass Bank. The object of this letter is, out of gratitude for the many tips I have got from reading *The Motor Cycle* regularly, to pass them on to a few more readers who may not have read this interesting weekly so long as I have.

Practically, the whole thing is to fit a two-speed gear and Whittle belt (⅞in. or 1in.) to a 3½ h.p. of one of the best known makes of machines. There are so many choices nowadays of machines that are equally good, but they won't climb stiff, twisty, lumpy banks, *slowly*, so as to be both comfortable and safe.

Personally, I ride a 3¾ h.p. N.S.U. fitted with two-speed gear and free engine (both bought second-hand), and tackle these hills daily as a matter of course with the very greatest ease and comfort. Rubber belts and ordinary leather belts are of no use here, as it means shortening every few days, and slipping, and short life. The only improvement on the Whittle (for this district) would be a chain drive. My motor cycling now is practically all pleasure, where it used to be marred before by some very hard work.

EXPERIENTIA DOCET.

Automatic Carburetters.

[4758.]—I have read the letters in *The Motor Cycle* regarding automatic carburetters, and have been much interested in them. I purchased a 3½ h.p. new Rover tricar in July, 1906, and this machine is fitted with a carburetter which is entirely automatic. It is the simplest carburetter possible, has only one lever to operate throttle, and no extra air device whatever, no flap or sliding tubes, and it will give a correct mixture at all speeds. The engine will run dead slowly and will run fast. Weather is no object, and as proof of perfect mixture during the time I have had the machine (I have worn out three back tyre covers) the exhaust valve is as clean as most inlet valves, and shows no signs of burning.

I am never troubled with overheating, and my longest non-stop run was from Thornton Abbey to Peterborough, about eighty-nine miles. If a carburetter as simple as this could be fitted nearly four years ago, I cannot understand why more are not on the market. I do not know the maker of the carburetter; it was fitted by the Rover Co., but it is not the Rover automatic. AT 394.

The Motor Cycle in the United States.

[4759.]—I have read with great interest the correspondence which appeared in *The Motor Cycle* on the above subject and certainly feel very sorry for "Disgusted Belt User." I am at a loss to understand how he uses his belt if he can only average about 300 miles with an English belt.

In this hot country I have never found my belt run less than 2,000 miles, and often average more than this figure. It is a fact that if the pulley is not true and the belt not in a straight line, the life of it will be short, but even in this case I find the belt is good for nearly 1,000 miles.

My friend owned a 3½ h.p. motor cycle, fitted with an automatic pulley; the flanges of it are not true and yet he has covered more than 1,000 miles with the belt and it is still in use.

I received my new motor cycle fitted with Roc free engine and two-speed gear last month, and have since travelled about 300 miles on it. I have never shortened the belt yet, and it still looks like new.

I write this letter to let you know how your rubber and canvas belts behave in this part of the world, and certainly disagree with "Disgusted Belt User" about the short life of an English belt. SATISFIED BELT USER.

Perak, Malay States.

Storing Accumulators.

[4760.]—We have noticed at various times enquiries in the press on the above subject, and in many cases the advice given is such that, if followed, damage to the accumulator might result. We, therefore, give a few hints as to the methods to be followed, which an experience of twenty years in the manufacture of small portable accumulators for ignition and lighting purposes suggests are the best.

(1.) If an accumulator has never been charged, wrap it up or store it in a dark dry place.

(2.) If it is desired to put away an accumulator that has been charged for an indefinite period, run it down on a lamp till each 2-volt cell registers 1.9 volts, then empty out the acid and let it dry off, and store as No. 1. The slight sulphate formed in drying (if any) will disappear at the first charge.

(3.) If a charged accumulator is to be put by for any period up to six months, charge fully, wipe perfectly dry, and grease the terminals. Store in a dry dark place free from dust. At the end of the time very little of the charge will have been lost.

Water should never be put into an accumulator, whether charged or not, under any circumstances.

C. A. VANDERVELL AND CO.

The London-Edinburgh Run.

[4761.]—My object in writing this letter is simply because I think there must be other readers of your journal who have had the same treatment meted out to them at the hands of the committee of the M.C.C.

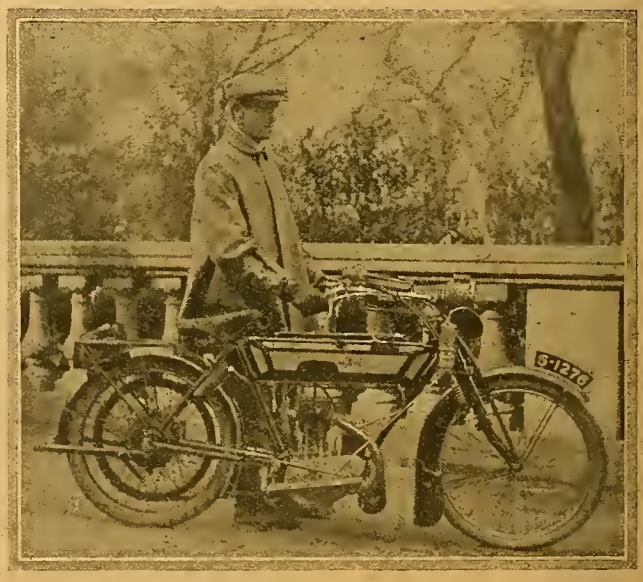
On April 24th I offered myself as a candidate for the London to Edinburgh run, and I therefore complied with the necessary conditions set forth in H. G. Bell's article in *The Motor Cycle*, viz., one guinea subscription, five shillings for membership, ten shillings and sixpence for entrance fee for run from London to Edinburgh, and eight shillings for food. This, I conclude, was all that was necessary, but to make sure I enclosed three trade references. Now comes the worst of all, and you may guess what a surprise I had when I had my money returned with a note that I had failed to get the necessary votes from the committee. I might add that the same thing occurred last year, and was a great surprise to many of my motoring friends, who will no doubt read this letter.

Can any reader offer me an explanation, as this action on the part of the M.C.C. Committee appears to me to be somewhat arbitrary.

JACK MORRIS.

An Appreciation of a Two-speed Humber.

[4762.]—In the early part of this year the Humber Company were good enough to let me have a trial run on one of the two-speed models, and I was so pleased with its running that I placed an order for one. The machine arrived just in time for Easter, and I lost no time in putting it through its paces. I thought my experience of its capabilities might interest some of your readers. Pleased as I was with the 1909 model, it cannot be compared with the present one.



A. C. Robbins and the 1910 2¾ h.p. Humber, which he eulogises in the accompanying letter.

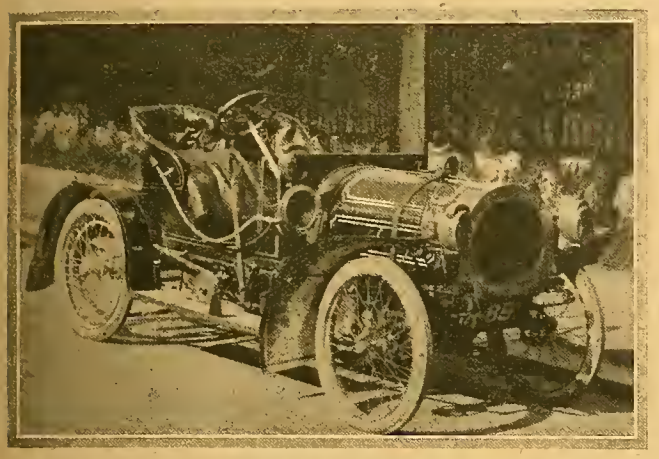
Its remarkable freedom from engine vibration, its soft gliding motion even when travelling slowly, its ease of control and handiness in dodging ruts, etc., all combine in making it one of the ideal mounts of the season. The operation of working the gears is much easier, with their neat adjustable rods, also the smooth handle-bar free from any sharp edges, and the rounded handle grips make it a comfort to ride.

It is a fair hill-eater; I find it will climb Swain's Lane hill without any hesitation on top gear of four and three-quarters to one without any rushing. I find it also capable of travelling at a very fast pace over long stretches without overheating; on the Great North Road (early in the morning), between Barnet and Biggleswade, it will go at speeds bordering on double the speed limit.

On the whole I consider it an exceptionally good tourist mount, and one which should be seen on the road a lot this year. The specification may be of interest: 3½ h.p. Humber, two-speed gear, Bosch magneto, B. and B. carburetter, Liversidge rubber and steel-studded back tyre, Dunlop front, Dunlop butt-ended tubes, Whittle belt, and Brooks's saddle. I can speak very highly of the Liversidge tyre, and also the Whittle belt—one free from punctures, the other free from breakages. A. C. ROBBINS.

A Light Four-wheeled Runabout.

[4763.]—I was very interested to read in *The Motor Cycle* the account of a belt-driven four-wheeled runabout with four-cylinder F.N. engine. I have had one built almost exactly like it. It was finished last August, and has been very successful. Mine has a 9 h.p. Advance twin, water-cooled engine, Bosch magneto, C.M.F. radiator, Kent three-speed gear, no reverse, Hans Renold chain from engine



A belt-driven runabout, propelled by a twin-cylinder V type Advance engine. (See letter No. 4763.)

to three-speed gear, 1in. Whittle belts, geared 6.8 and 10 to 1, but I am going to raise the gear, as it takes absolutely everything on top with two up. The wheelbase is 6ft., track 3ft. 6in. All four wheels are fitted with 26 × 2½in. Palmer cord tyres. I have run about 2,000 miles and had no trouble with the belts and not a single puncture. The body is painted dark green, with black and white lines. I got a local coachbuilder to make the body and paint same, and he finished it very nicely. It has quite a smart, up-to-date appearance. I hope the enclosed photograph will be of interest.

W. A. McKEGGIE.

An Extended Trial of a Scott.

[4764.]—I read the article under the above heading in the issue of the 21st ult. with great interest, the more so as I am an enthusiastic rider of a Scott, but have done over double the distance you mentioned. I have nothing to find fault with the major portion of the article, but find myself in disagreement with you on one or two items, notably, "petrol consumption." I may say that I ride one of the new 1910 4 h.p. models, which, while having the same stroke as the standard 3½ h.p. machine, has ⅛in. bigger bore, namely, 2¾in., against 2⅝in.

I completed 1,007 miles on fifteen gallons of Shell petrol, and had probably enough in tank to carry me ten miles more, but, having a twenty-five mile journey, was reluctantly compelled to fill up again. A simple calculation shows that this is slightly better than sixty-seven miles to the gallon, and I am hoping in my second 1,000 miles to improve on this and do over seventy.

Slow running: I find that I can throttle down comfortably to 10 m.p.h. on high gear, which is 4.3 to 1, but on the low 7.3 to 1, I can crawl at a speed, firing regularly, too slow to be shown on my Jones's speedometer, which is not very sensitive below 8 m.p.h., so that I don't think there is anything to complain of on that score. On the high gear, given a good level road, I have not the slightest difficulty in touching 50 m.p.h., while on a slight down gradient I have increased this to sixty out of curiosity to see what one could push it to. Needless to say, one does not often indulge in such bursts of speed, but on open roads I usually settle down to a comfortable 30 m.p.h., which is the Scott's most comfortable speed.

I have never myself found any trouble with the spring stand, and it has never come adrift, nor did I find it necessary to adjust the chains until I had completed 1,100 miles, and then but a trifle.

Like you, I, too, found the extra air lever somewhat inaccessible, but as it only wants once adjusting, it seemed to be a pity to complicate matters and put handle-bar control on it. One dark night, however, after starting, in putting my hand down to open it, I got hold of the sparking plug instead! Needless to say, my opinions underwent a violent change.

There is one point that you have not touched upon, which is one of the features of a Scott motor, namely, the water cooling. I have been asked numberless times if this causes any trouble, and if the water boils away. I have never yet had the water boiling at all, and in the first 1,000 miles only twice added about a teacupful to the tank.

Wishing, after the first 1,000 miles, to take the engine down and see what was the condition of same, I telephoned the Scott people for some exhaust packings, telling them that I was proposing to take it down. They told me it would be a much better plan to run up and have it taken down at their place, which I did. Showing the wonderful accessibility of the Scott, I may say that the whole engine was taken down and laid ready for my inspection in less than a quarter of an hour. When we proceeded to try the various parts on the limit ganges, there was not a shadow of wear or a shake in any part, and bar the fact that I had, through over lubricating, slightly choked up the exhaust ports, nothing wanted doing.

In conclusion, should anybody wish to use a speedometer with Scott machine, which is practically necessary on a first-class machine, I should strongly recommend him to have it coupled up, as mine is, to the back wheel, and clamped by a neat fitting, which the makers of the machine supply, to the down oil tube. It is extremely neat and out of the way, and is of great use for "tuning up purposes," as one has but to start it on the stand, slip in the high gear, and if it will touch sixty on the dial, with the throttle about half open, you may depend upon it it will give a good account of itself on the road. I need hardly say that the only connection I have with the Scott Engineering Co. is that of a satisfied user of one of their machines.

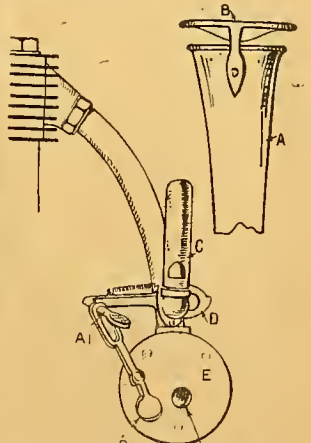
R. B. CAFFERATA.

Exhaust Whistles.

[4765.]—*Re* exhaust whistles on single-cylinder machines, I have such a whistle on my machine, but did not get good results till I fitted a shutter that worked along with pedal of whistle, so that the whole of the exhaust gases must go through whistle. Again, if you are running through a town, throttle shut, and need to give a warning, it is an easy matter to open throttle just for a second and give two or three sharp toots.

I used to have a lot of bother with a trinote horn being choked up; in fact, if there was any dust on the roads it was put out of business in less than five miles. I now have fitted a baffle in front of each horn about ½in. in front. This has stopped the dust getting in, and horn is always in order, but I prefer the exhaust whistle, as the hands are left free.

A.M.



Horn Baffle.
A. Horn. B. Baffle.

Exhaust Whistle.
A. Pedal B. Shutter. C. Whistle.
D. Cut-out. E. Silencer.
F. Exhaust.

EXPERIENCES WANTED.

"Beginner" (Ventnor) would be glad of readers' experiences of the Royal Mail tricycles used for the carriage of letters and postal parcels in the London streets.

"J. P. H." (Galway) would be glad of readers' opinions of Morganol lubricating oil for motor cycles.

"H.A.H." (Pontypridd) would be glad of readers' experiences with the Millennium Fit-all two-speed gear on a 5 h.p. twin-cylinder engine with sidecar.

A reply to an enquiry addressed Mr. Percy Pelt, Grantham, has been returned as "not known."

CURRENT CHAT

Time to Light Lamps

(GREENWICH).

May	12	8.38	p.m.
„	14	8.41	„
„	16	8.44	„
„	18	8.47	„

Special Features

Sydney R. Jones

A FORECAST OF THE T.T. RACE.
SATURDAY'S OPEN HILL-CLIMB.
THE NORTHERN LEAGUE.

Whit-Monday Racing at Brooklands.

For the Whit-Monday meeting at Brooklands, there are sixteen entries in the May Motor Cycle Handicap, and twenty-nine in the Whitsun handicap.

Tourist Trophy Race.

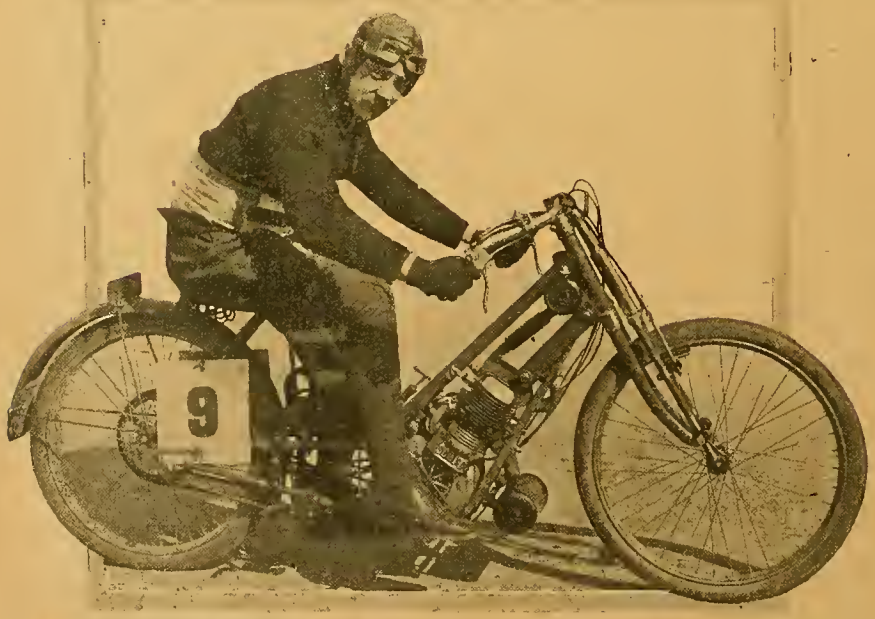
The machine entered by D. E. Rea is a 3½ h.p. Moveo, which will be ridden by Hugh Storey. There will be three Moveo motor cycles in the T.T.—a design hailing from Preston.

I.O.M. News.

The entry for the Tourist Trophy has eclipsed all previous figures; the latest received appear elsewhere in this issue. The race will be followed by a hill-climb on the mountain road, which will be held at 2.30 p.m. on Friday, 27th inst.

The Scott T.T. Racers.

The two two-stroke Scotts entered for the Tourist Trophy are now running on the road and promise very well. Eric S. Myers and F. Philipp will ride the machines in the race. They are more powerful than the standard model, and of amended and lighter design, as may be gathered by the illustration below. The bore is 2⅞in. and stroke 3in. The effective stroke is only 2¼in., so that the engine really is a short stroke engine viewed from the thermal aspect. The capacity is 39 cubic inches, compared with 27 cubic inches of the standard engine. At 2,000 revolutions per minute the new engine is calculated to give 6.3 b.h.p., whereas at the same speed the standard Scott gives 4.35. The T.T. model is geared 2½ to 1 on the high, and 3.78 on the low gear, so that at sixty miles per hour the engine makes 2,017 revolutions on the high and 3,041 on the low gear. A mechanical oil feed has been adopted in addition to the ordinary hand pump. The machines are exceptionally silent in running. The Scotts are the only two-stroke engined machines entered for the Tourist Trophy Race.



Eric S. Myers mounted on the 5 h.p. two-stroke Scott he has entered for the T.T. in the Isle of Man on the 26th inst. Some details of the machine are given in a paragraph above.

Official Repairers.

A number of motor cycle repairers have now been officially appointed by the Auto Cycle Union.

A Fine Performance.

The only private owner to obtain full marks in the recent Quarterly Trial was H. Robert, who rode a two-speed P. and M. Only one trade rider—to wit, J. F. Crundall (3½ h.p. Humber)—was equally successful.

International Licences.

With regard to a paragraph published last week which referred to the new international licences for motor cycles, it is advisable to point out to readers that for the present the usual triptych issued by the A.C.U., M.U., A.A., etc., holds good, but in the very near future the new licences will be compulsory, and although they will be obtainable from the above organisations, they will be also issued to all motorists whether members or not.

Police Traps.

We have received the following information from a correspondent. There are a large number of traps in the Edgware Road (Hendon district), a road which is much frequented by motor cyclists at week-ends. A trap has recently been working on the Silkstream Bridge, between West Hendon Broadway and the brewery, where there is a dip in the road. There is one working near Edgware, either in the middle of the village or nearer London, by the Hendon Workhouse at Burnt Oak. It is also advisable to drive carefully from Hendon to Brockley Hill.

Racing at Sydney, N.S.W.

The Sydney Cycle and Motor Club held a combined night carnival on the Sydney Sports Ground on March 23rd. A two miles race for machines 3 h.p. and over was won by S. L. Bailey (5 h.p. Massey-J.A.P.) from J. E. Yee (3½ h.p. Triumph) in 2m. 22⅕s. A mile, for machines under 3 h.p., was won by C. Crouch from A. Levi in 1m. 34s. Both rode Moto-Rêves. In the final, F. Crouch, brother of the winner, through his footrest striking the grass, swung wide up the track and sustained a bad fall. The five miles championship of New South Wales was won by S. L. Bailey (5 h.p. Massey-J.A.P.) from J. E. Yee (3½ h.p. Triumph) by threequarters of a lap, with L. W. Firth (3½ h.p. Triumph) third. Time, 6m. 14s.

THE MOTOR CYCLE

KING EDWARD VII.

THE great and glorious King whose death was announced to a startled world on Saturday last reigned during the nine years through which automobilism emerged from its embryo stage, and developed in that period into the universal means of locomotion it now is. His late Majesty, the first sportsman in the land, was largely responsible for the rapid rise to popularity which motoring enjoyed. Taking to the method of travel we all so dearly love in its earliest days, our deeply lamented Sovereign never forsook it, and almost to within a few days of his demise he enjoyed the use of his car. Not only did he help to popularise motoring by setting the example to the highest in the land, but he took a keen and active interest in its doings, and three years ago became patron of the governing body, then the Automobile Club of Great Britain and Ireland, granting it permission by Royal Warrant to assume the title of the Royal Automobile Club. Through his influence the present Queen's brother, Prince Francis of Teck, became chairman of the R.A.C., and *ipso facto* President of the Auto Cycle Union. It is not for us to enlarge upon the great loss sustained by Great Britain, Europe, nay the whole world; but it would be unfitting not to dwell upon the great blow which has fallen upon automobilism, including, of course, motor cycling, through the death of its great and noble patron. The whole nation is plunged in sadness, and the small yet ever increasing motor cycling community bewail the loss of the greatest motorist in the land. To the Queen Dowager, King George, his Consort, and the Royal Family, we offer on behalf of our readers our heartfelt sympathy in this great sorrow. The fact that the new King is an ardent supporter of motoring is indeed welcome.

The King is dead! Long live the King!

Latest Donations to the T.T. Fund.

A. N. Wood, £1 1s.; the Motor Cycling Club, £2 2s.

Entry for the Six Days' Trial.

C. Patteson (2 h.p. Moto-Rêve) is the latest entrant for the End-to-end trial next July.

Motor Cycles Increased in Price.

An advance in the price of motor cycles varying from 20s. to 30s. has been made by most of the prominent manufacturers, in consequence of the high prices of tyres.

London to Coventry and Back.

The North-West London M.C.C. twelve hours run to Coventry and back was postponed from Saturday at the last minute, and May 28th has been announced as the probable date. A large crowd collected at the finishing point on Saturday evening on the supposition that the competitors had started.

A Champion Tennis Player and Motor Cyclist.

A. F. Wilding, the old Cambridge lawn tennis captain, and well-known to our readers as an enthusiastic motor cyclist and rider of a Bat, has returned to England, and is looking very fit and well. Since his return home to New Zealand in 1908 Wilding has gained many honours. He is now anxious to follow in the footsteps of Brookes and secure the English championship. This week he will take part in the tennis tournament at Wiesbaden.

The Herts County A.C. (Motor Cycle Section) Hill-climb.

When the sad news of the death of King Edward was announced no one expected the hill-climb at Aston would take place, but as no one of those intimately concerned received news to the contrary a number of competitors made their way to Tring. On the way down, in Hemel Hempstead, Mr. Salmon, the secretary of the Herts County A.C., was met, and he first gave the official intimation of the postponement; then, when clear of the village, Geiger rounded a bend, and sadly shook his head, while a little further on came Wells, Hedstrom, Bentley, and others on Indians, all homeward bound. At the Rose and Crown in Tring, Jenkins, Booth, Straight, and a few others were to be seen, all very quiet and sad looking. On the hill itself a number of cars and motor cycles were gathered, and one or two were trying their machines up its gradient.

FUTURE EVENTS.

May 13, 14, and 16 (Whitsun)—M.C.C. London-Edinburgh and London-Edinburgh and Back Runs.

" 26 (Thurs.)—INTERNATIONAL MOTOR CYCLE T.T. RACE.

" 27—Open Hill-climb in the Isle of Man.

June 4—Motor Cycling Club second private race meeting and gymkhana at Brooklands.

" 6-11—Scottish Six Days' Open Reliability Trial, organised by Edinburgh M.C.C.

" 18—M.C.C. TEAM TRIAL FOR "THE MOTOR CYCLE" CHALLENGE CUP. Competing Teams: Motor Cycling Club (holders), Coventry and Warwickshire M.C., Bristol B. and M.C., Streatham and District M.C., Sutton Coldfield A.C., Edinburgh M.C.C., Southern M.C., Harrogate and District M.C.C., Great Yarmouth and District M.C.C., Herts County A.C., Essex M.C., N.W. London M.C.C., Oxford M.C.C., Nottingham and District M.C.C., and Sheffield and Hallamshire M.C.

Annual Spring Number.

We have a number of special features in preparation for our special Spring Issue and Tourist Trophy Number on May 26th—a fortnight hence. Illustrations and sketches by well-known artists will be a feature, while, in addition to our usual features, special articles already arranged for include the following:

Through Great Britain and the Continent—an interesting narrative of a 4,000 miles tour, by Dr. A. M. Webster.

An historical article descriptive of the International Cup Race (the forerunner of the present T.T. Race), and the Tourist Trophy Race to date.

Suggested Holiday Tours in England, showing routes for an enjoyable tour on a motor cycle in Northern, Central, and Southern England.

Photographs of competitors for the Tourist Trophy, with specifications of their machines.

Latest news from the T.T. course, with illustrations and special reference to the practising.

Brooklands Whitsun Meeting.

The Whitsun race meeting, which was to have been held at Brooklands on Whit-Monday, has been postponed.

The London-Edinburgh Run.

We hear on going to press that the annual M.C.C. London-Edinburgh and back run will be held this week-end as originally arranged.

T.T. Items.

S. A. M. Witham will ride a 5. h.p. J.A.P. and not a 3½ h.p. Triumph as has been announced. The Moveo machines entered by Messrs. Loxham and Co. are a 5 h.p., rider R. Loxham. and a 3½ h.p., rider H. Holding. Both these machines are fitted with J.A.P. engines.

Worth Trying For.

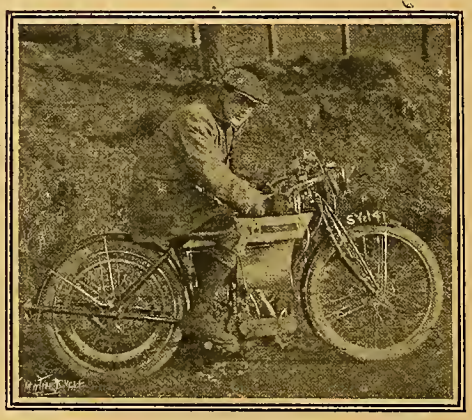
The Vacuum Oil Co. offer a prize of £25 to the winner of the T.T. should he use Vacuum oil in the race, or £10 to the first home of the first three who use this well-known lubricant.

The Filey Speed Trials.

As regards the speed trials at Filey on Whit-Monday, we understand that the organisers will follow the example of other clubs as regards the holding or postponement of the event.

M.C.C. Race Meeting and Gymkhana.

We have been favoured with an advance proof of the events to be held at the above meeting at Brooklands on June 4th. From it we notice that there are six racing events for motor cyclists, a hill-climb, and a special invitation race for a silver cup, besides three gymkhana events. We have already briefly referred to the invitation race. It is to be a contest between selected and representative riders of the most popular makes of motor bicycles as offered to the public, and the M.C.C. invite applications from members who desire to take part in such a contest. Every application will be considered, and the committee will select one suitable machine of each recognised make submitted to them, and will put up as fair a sporting competition for a silver cup as lies within their power.



A. H. Alexander (single cylinder T.T. Rex), fastest in the single cylinder class of the Edinburgh Waverley M.C. speed test. He will ride this machine in the T.T. Race fitted with wind scoops as shown.

The Board of Trade Returns.

Imports of motor cycles and parts show a considerable increase during April. The month's figures were £11,020, as compared with £6,374 in April, 1909, and £6,093 in 1908. The returns for the four months ended April 30th were:

	1908. £	1909. £	1910. £
Imports of motor cycles ...	17,360	12,263	15,669
Parts thereof...	5,923	7,470	20,148
	£23,283	£19,733	£35,817

The British Exports.

Exports of British-made motor cycles and parts still show an upward tendency. The April figures for 1908-9-10, were £4,558, £6,188, and £11,196 respectively. The export figures for the four months ended April 30th were:

	1908. £	1909. £	1910. £
Exports of motor cycles ...	9,014	13,467	29,022
Parts thereof...	8,773	11,317	13,080
	£17,787	£25,784	£42,102

Re-exports.

Foreign motor cycles and parts re-exported from this country during the four complete months of 1910 reached a value of £1,622. During the corresponding period of 1909 the figures were £6,673.

TOURIST TROPHY RACE. LATEST DETAILS. THE OLD COURSE TO BE USED.

Although eighty-three entries have been received for the T.T., it has been decided to reduce the number to seventy, in accordance with the regulations and to meet the wishes of the Isle of Man authorities. The prizes will be as last year, viz.: 1st, £40; 2nd, £20; 3rd, £10; 4th, £5. A cup will be awarded to the first private owner not finishing among the first three and a silver medal to all who complete the course. The old course will be used, viz.: St. John's-Ballacraine-Creg Willeys Hill-Kirkmichael-Peel-St. John's. During practice competitors must not leave Ballacraine corner after 7.15 a.m., and after 7.30 a.m. the legal limit must not be exceeded. Machines must bear numbers carried on round discs, as at Brooklands, on both sides of the front forks, and on a wooden board facing forward, and armlets in addition. Competitors will be expected to deposit 5s. with the A.C.U. for the loan of the boards. Machines will not be weighed this year, but the inspection by the judges will take place at St. John's at 10.30 a.m. on the 25th inst., and the brake and silencer tests will follow.

The judges nominated are: J. W. Orde, Robt. Todd, V. Hart, and J. W. G. Brooker.

The Isle of Man Steam Packet Co. announces that from May 23rd to June 30th (Sundays excepted) there will be a double day express service. The sailings will be as follows:

From Liverpool: Daily, 10.30 a.m. and 2.45 p.m. Extras, Wednesday, May 25th, 12.50 night.

From Douglas: Daily, 9 a.m. and 4 p.m. Extras, Monday, 12.30 a.m. (Sunday night); Thursday, May 26th, 6 p.m.

Thursday, 26th May, the day of the race, there will be a one-day excursion. Sailing as under: Liverpool to Douglas, Wednesday, 12.50 night; returning from Douglas Thursday, at 6 p.m. Day fare: Steerage, 4s.; saloon, 6s.

Four days' excursion tickets will be issued on Wednesday, May 25th, by steamers leaving Liverpool at 10.30 a.m., 2.45 p.m., and 12.50 night, available until the following Saturday. Four days' excursion tickets, issued also on Monday, 23rd May, available until the following Thursday. Fares: Steerage, 5s. 6d.; saloon, 8s. 6d.

The charges for machines when accompanied by passengers are: Motor bicycle, 2s. 6d.; with trailer, 5s.; motor tricycle, 5s. If more than one seat, 2s. per seat extra.

Petrol must be emptied from tanks before going on board.

THE SCOTTISH SIX DAYS' RELIABILITY TRIALS.

It has now been decided to alter the route slightly. On the second day the circuit from Aberfeldy to Amulree Hotel and Kenmore is left over till the last day. Thus, on the second day the competitors will go straight to Pitlochry, Braemar (lunch and control), Grantown (timed check), and Inverness—about 136 miles. On Saturday they will leave Aberfeldy and go straight over to Amulree Hotel, and then over the Amulree Hill to Kenmore, down the north side of Loch Tay to Killin (timed check), then on to Lochearnhead and home by Callander (lunch and control), Stirling, and Murrayfield car terminus (Edinburgh)—about 109 miles. This considerably reduces the second day's task.

MEET OF MIDLAND MOTOR CYCLISTS.

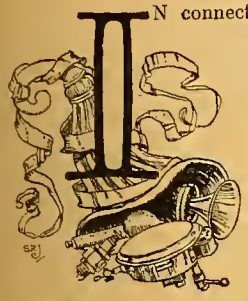
The third annual meet of Midland motor cyclists will be held at Stratford-on-Avon on Whit-Monday.

Ten clubs are expected to be represented, and programmes have been sent to the hon. secretaries of all clubs interested for distribution to their members. The programme is. Lunch at the "Swan's Nest" at 1.15; group photograph at 2.15; tug-of-war between teams of six members of each club represented at 3.0; prizes, road maps of England and Wales.

All motor cyclists in the Midlands are cordially invited, whether attached or unattached.

The meet in the two previous years was a great success.

MILITARY MOTOR RECONNAISSANCE IN THE MIDLANDS: OFFICIAL REPORT.



IN connection with the military motor reconnaissance of the Coventry and Warwickshire M.C., on April 30th, and reported in our last issue, Col. J. E. Caunter has now gone carefully into the matter, and issued his report, an extract from which we give below. The despatch riders, it will be observed, come in for especial praise by the military authorities:

General Remarks.

"The G.O.C. wishes to thank all who took part in the motor reconnaissance on April 30th, and to record his appreciation of the keenness and intelligence shown in carrying out the work.

"In spite of the inclement weather, which made efficient reconnaissance a matter of great difficulty, the many excellent reports received at the headquarters, Coventry, conclusively prove the value of a motor reconnaissance carried out under such circumstances as mentioned in the general and special idea.

Motor Cyclists.

"The motor cyclist despatch riders performed their duties in a most efficient manner. Only one case came to notice of reports having gone astray or of despatch riders losing their way. In one or two instances the distances were traversed at the rate of upwards of thirty miles an hour, the average pace working out at twenty-four to twenty-five miles an hour. In all, some thirty-six messages and reports were delivered.

Observing Officers.

"Although much good work was done, there are one or two points to which the attention of observing officers must be drawn if we are to get full value in future from a reconnaissance of the nature under consideration. The principal mistakes noticed were that reports did not always contain the information especially called for in the instructions issued to all observing officers, *e.g.*: Car No. 33 reported the interception of a Blue message, but no place or time was given. On D route a message (No. and place of despatch omitted) stated that Southland troops had been sighted, but gave no further details. The message was not signed. Several others omitted either the place of despatch or the hour at which the information was obtained, both points absolutely necessary for the G.O.C. to know, and without which a report is practically of no value."

KEEPING THE LAPS
GIBSONS ACTION
THE HON SEC.
WILL ANY GENT HAVE A LITTLE SPORTING WAGER
SKETCHED AT THE FORK
F.W. BROOKLANDS
WINNER OF THE ONE MILE SPRINT
MR NESBIT AND MAJOR LINDSAY LLOYD
MR & MRS McNAB
COLVER'S STAND CAUSES TROUBLE & DELAY
BUWENS HARD LUCK WITH HIS TYRE

The B.M.C.R.C. Meeting at Brooklands on May 4th as seen by our artist.

THE NEW INTERNATIONAL PASS.

IN the past the path of the motor cyclist visiting France has been beset with difficulties, the principal of which was the question of licences. Most motor cyclists grudged the outlay of 50 francs, or £2, on landing, and some of them in blissful ignorance of the law's requirements, and others, perhaps, knowing the law but trusting to luck, have ridden in France without licences. When no accident happened the chances were in favour of getting through with success, but the consciousness that one might be stopped by any *agent de police* and asked some awkward questions tended to detract somewhat from the completeness of one's mental comfort.

These difficulties are now, fortunately, a thing of the past. The new international arrangements which have just come into force enable the motor cyclist to provide himself with all the papers required at an inclusive cost of half a guinea. The Motor Union, in conjunction with other bodies, has been appointed to issue, after examination, certificates of fitness of machine and competence of driver, and to supply the holder of these two passes with an International Pass which will take him, without further difficulties on account of licences, from one end of Europe to the other. Motor cyclists should write for further particulars to the Secretary of the Motor Union, Caxton House, Westminster.

INTER-CLUB TEAM TRIAL.

Promises of entries for the M.C.C. team trial, on June 18th, have now been received from fifteen clubs, the three latest being the Oxford M.C.C., the Nottingham and District M.C.C., and the Sheffield and Hallamshire M.C.C., all of which clubs were represented in the last event, the Oxford team occupying third place at the finish.

Aberdeen and District M.C.C.

The club held its first competition of the year—a flexibility trial—on the Slug Road on Saturday, 30th April. The winners, with their respective ratios, were: 1, J. Hay, 9.00; 2, J. Bruce, 7.72; 3, J. E. Wilks, 7.13.

Lewes M.C.C.

A general meeting of the above club was held at the White Hart Hotel, Lewes, on Tuesday last week, when officers were elected. The secretary was asked to obtain particulars from the A.C.U. and M.U. with reference to affiliation. It was resolved that the subscription should be 5s. per annum with an entry fee of 1s. Sixteen new members were elected.

Surrey M.C.C.

A club run took place on the 4th inst., to Leith Hill. The journey to and long climb up the hill were accomplished without incident, and tea was taken at the Leith Hill Hotel. The return was made by way of Dorking in heavy rain. A two-day tour through Kent to Hastings has been arranged for Whitsun; members who propose to attend are requested to notify the hon. sec. at once. Start on Sunday at 10 a.m.

Western District M.C.

The reliability trial to Bath and back for the "Smart Cup" held on the 1st inst. proved very popular, and the running of the leaders was remarkably close. Sixteen started, and following are the results subject to the confirmation of the committee:

	Entrant and machine.	Difference in seconds from schedule time.	Remarks.
1.	Stanley Woods (3½ Triumph)	0	Non-stop
2.	H. J. M. Hughes (5 V.S. and sidecar)	10	Non-stop
3.	H. Candwell (3½ Triumph)	30	Non-stop
4.	C. H. Dobson (5 Rex)	120	

Nottingham and District M.C.C.

At the Notts Forest F.C. Sports there was an obstacle race confined to members of the above club, no free engines or starters allowed. Competitors had to thread two sets of four flags each.

The result of the first heat was: 1, W. Welford (3½ Scott); 2, J. Fairburn (3½ C.C.R.-Smith). Welford, riding with excellent judgment, won easily. He had to use the low gear entirely owing to the regulations.

Heat 2.—1, G. C. Holmes (5-6 Roc); 2, A. E. Lole (5-6 F.N.) Geo. Brough (3½ Brough) skidded when taking the last obstacle and came down, Holmes winning easily.

Heat 3.—1, J. D. Mitchell (3½ T.T. Triumph); 2, C. H. Sewell (3½ Triumph); 3, J. King (5-6 F.N.) Mitchell won fairly easily, Sewell skidding slightly. King was handicapped by a bad start.

Final.—1, Holmes; 2, Welford; 3, Mitchell. Gold medals were awarded to each rider.

The competition was voted a thoroughly sporting event by participants and spectators alike.

Westmoreland M.C.C.

A reliability trial was held on Saturday, May 7th, the route taken was from Kendal to Keswick and Penrith *via* Grasmere, and returning over Shap Fells to Kendal. The day was bitterly cold and frequent hailstorms prevailed. There were four controls, all speedometers barred. A maximum of 100 marks was allowed each man, five marks were deducted for tyre troubles, ten marks off for any other stop whatever, one mark deducted for each minute soon or late at each control, average speed not to exceed 18 m.p.h. The results were as follows: 1, W. Westwood, Triumph, 100; 2, Dr. Dick, P. and M., 99; 3, R. Hutchinson, Bradbury, 97; 4, T. Armstrong, Triumph, 95; 5, H. Harrison, Bradbury, 94. The secretary would like members to note the next two hill-climbs are—May 21st, Dr. Dick's, Tug's Vicarage; June 9th, Mr. V. G. Blackburn's, Greyhound.

Some of the despatch riders in the Coventry and Warwickshire M.C. military reconnaissance, handing reports to the Commanding Officer. The official report says that the despatch riders "performed their duties in a most efficient manner." It may be mentioned that the machines were chiefly Triumph and Rex, in charge of F. Hulbert and H. Williamson respectively. (See previous page.)

Club News.—

Sutton Coldfield A.C.

The annual hill-climb took place on Saturday at Coalport, near Ironbridge, on a private road which can be closed to other traffic when desired. The event proved a great success.

Mr. R. H. Duke officiated as judge, whilst Mr. F. W. Finnemore, C.A., rendered assistance as accountant, thereby enabling results on formula, etc., to be posted up and be made known within two minutes of a competitor ascending the hill. The results were as follows:

CLASS I.—FOR SINGLE-CYLINDER TOURING CYCLES.

Position on formula.		Time. m.	s.
1.	H. J. Heaven (3½ Bradbury)	1	24⅘
2.	James St. John (3½ Triumph)	1	47⅕
3.	Howard Smith (3½ Triumph)	1	38⅕
4.	F. P. Mayell (3½ Triumph)	1	48⅖

5, T. Blyth Clayton (3½ Bradbury); 6, H. C. Newman (3½ Ivy); 7, R. N. Corah (3½ Corah), did not finish.

CLASS III.—FOR TOURIST TROPHY MACHINES.

Position on formula.		Time. m.	s.
1.	Howard Smith (3½ T.T. Triumph) ...	1	12⅕
2.	J. L. Norton (3½ Norton)	1	17⅗
3.	W. D. South (5 Indian)	1	22⅖
4.	James St. John (3½ Triumph)	1	30
5.	Rem Fowler (5 Rex Speed King) ...	1	48

Newcastle and District M.C.C.

A very successful trial was held on Saturday last. The competition took the form of a non-stop run for eight miles, then climbing Eglingham Bank. After lunch a second hill, known as Lemington Bank, was climbed. T. Smith (3½ Triumph) made fastest time. Dr. Goodall (3½ Triumph) winning on formula. In the twin class, J. F. Mallett (6 N.S.U.) was fastest and also first on formula. I. Baty (3½ Dene) won the gold medal for best time aggregate, and also for best formula aggregate.

Edinburgh Waverley M.C.

A speed competition was held at Dolphinton, near West Linton, on Saturday last, when some good speeds were recorded. The results of the competition are:

SPEED TRIAL.

	m.	s.
T. B. Hunter (5 twin Indian)	1	12
J. Baxter (5 T.T. Rex twin)	1	15
A. H. Alexander (3½ T.T. Rex)	1	17
W. Gerrard (4 Matchless)	1	18
F. Durie (3½ Triumph)	1	25
J. A. Brown (3½ Bradbury)	1	30

SLOW TRIAL.

J. A. Brown	2 35
A. H. Alexander	2 18
F. Durie	Failed.
W. Gerrard	Failed.
J. Baxter	Failed.
T. B. Hunter	Failed.

Redditch and District M.C.C.

A very successful hill-climbing competition was promoted and carried out by the members of the above club on Wednesday evening, May 4th. Eleven motor bicycles and one tricar entered. Mr. Frank Hyde kindly provided the first prize, and Mr. J. W. Davis the second prize. The competitors were started off by Mr. F. Smith, the captain, and checked at the finishing point by the Rev. G. Charke. The machines varied in power and weight from the 2¼ h.p. Enfield weighing 120 lbs., to the 4 h.p. N.S.U. weighing 220 lbs., and the times taken to ascend the hill varied from 79 seconds to 117 seconds, and 179 seconds for the tricar and passenger. The results on formula are:

Sutton Coldfield A.C. hill-climb. Scene at the foot of Coalport Hill, showing a competitor starting.

*1, J. Cocker (2¼ Enfield); 2, W. F. Skinner (3½ Tricar); *3, Stanley Smith (2¼ Enfield); 4, W. Spencer (3¾ N.S.U.); 5, H. Bryant (3½ Triumph); 6, F. Wright (3½ Triumph); 7, F. Woodfield (2¾ Douglas); 8, F. Hopkins (3½ Triumph); 9, G. H. Mansell (2¼ Enfield); 10, W. E. Brough (3½ Rex); 11, Wm. Ellis (4 N.S.U.); 12, H. W. Wynn (2¾ Wynn).

*As the first and third riders had not been elected members of the club, the committee have to decide as to whom to award the prizes. The fastest time was made by W. E. Brough, a lightweight rider of nine stones, on a 3½ Rex, whilst H. Bryant, a twelve stone rider, took two seconds longer on a 3½ Triumph.

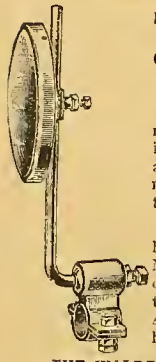
A day run has been arranged for May 18th to Cheltenham. Start from headquarters at 10 a.m.

Competitors in the Edinburgh Waverley M.C. Speed Trials at Dolphinton.

HUNT'S

The City Motor & Cycle House,
NEWGATE ST., LONDON, E.C.

RELIABLE ACCESSORIES AT
London's Lowest Prices



MOTOR CYCLISTS' CONVEX LENS MIRRORS.

Enables the rider to see what is behind him, and, what is more important, the police trap.

Fitted on handle-bar. Made so that it can be adjusted to any angle. Adjustable in height.

For attaching to handle-bars.

Price, plated.

No. 1. s. d.
3in. lens.. **4 11**

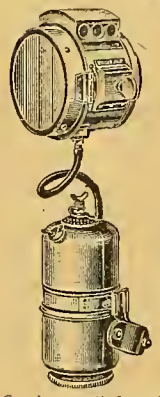
No. 2.
4in. lens.. **5 11**

No. 2 is fitted with ball-joint.

Postage 4d..

THE WALBRIM PARAFFIN INJECTOR.

EASY STARTING IN ALL WEATHERS.
No gummed up pistons. No laborious pedalling.
No leaking oil cans. No oily pockets.
No waste of time. Always ready.
Electro-plated and well finished.
Size: Length, 6½in.; Diam., 1⅝in.
Carries enough Paraffin to last several weeks.
Price **4/-** Postage 2d.



THE HUNT ACETYLENE LENS MIRROR HEAD LAMP.

English manufacture.	Copper riveted.
Width of front, 4¾in.	Powerful lens mirror,
Mirror, 3⅜in.	will throw a beam of light 150
Weight, 30 ozs.	yards.
Solid Brass or Nickel-plated.	Fitted with Bray's burner.

Price, complete, with generator, **19/11.** Postage 6d.

Strong Tubular Carrier.
Size: 21 × 8in.

Can be supplied to fit D or oval stays, with or without dropped ends. Price complete with straps, **6/6.** Postage 6d.

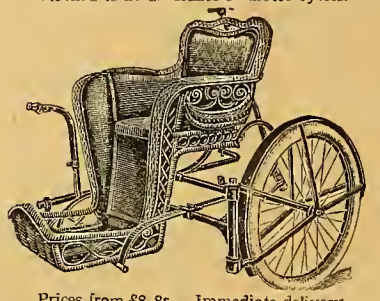
THE HUNT HELLESEN DRY CELL.

No corroding terminals. No acid. No charging. Always ready, clean, and dry. The **"Flash."** Height 6½ x 4½ x 2½in. Approx. mileage, with single-cylinder engine, 1500. Price **6/6.** The **"Flight"** ditto. Height 5⅝ × 5¼ × 2½in. Price **6/6.** The **"Midget"** emergency ditto. Height 5⅝×4⅜×1⅝in. Will run approx. 300 miles. Price **4/4.** Postage 6d. extra.

REPAIR BANDS.

The H.S. for bursts or gashes in the outer cover; goes completely over cover, and is tucked inside rim. Price **1/6,** postage 2d.

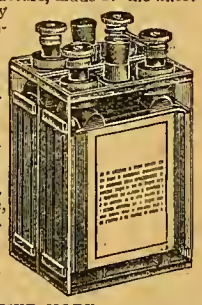
City Agents for **MILLS & FULFORD SIDECARS.**
Stocked to fit all makes of motor cycles.



Prices from £8 8s. Immediate delivery.
Catalogues post free.

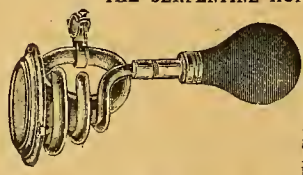
THE "HUNT" ACCUMULATORS

These are British manufacture, made of the finest quality materials. Specially constructed to stand vibration.



No. 0. 10 Amps.
Size 5 × 3 × 1⅞ins.
Price **9s. 6**
No. 1. 15 Amps.
Size 6 × 3½ × 1⅞ins.
Price **11s. 6d.**
No. 2. 20 Amps.
Size 6½ × 4⅛ × 2⅛ins.
Price **12s. 6d.**
No. 3. 40 Amps. Size, 6¾ × 4½ × 3⅜ins. Price **21s.**
No. 4. 60 Amps.
Size 6½ × 4¾ × 5¼ins.
Price **27s. 6d.**
Post free.

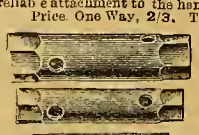
THE SERPENTINE HORN



An entirel new model, loud and penetrating. Gives off a deep, loud, lasting note, and can be heard from a great distance. Fitted with best rubber bulb and plated dust cover.
Length, 11in. Price **11/6** Postage 4d.

FULLER COILS.
Non-trembler 2¾ × 3 × 4½.
Price **10/6**
Twin ditto, 5½ × 3 × 4½.
Price **21/-**
Fuller trembler ditto, 2¾ × 3 × 4½in., **17/6**
Twin ditto, 5½ × 3 × 4½in., **21/.**

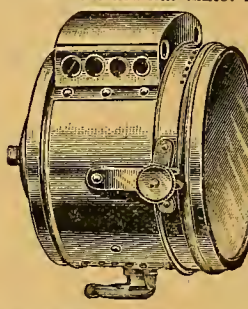
The "Hunt" ALL Metal Switch.
The design of this Switch is so extremely simple that there is nothing in it to get out of order; the contact is quick and definite for both make and break. The whole of the switch is made out of heavy sheet brass well finished and nickel-plated, the terminal is insulated with extra large ebonite washers and the fixing clip is attached by a bolt and a nut passing through the sides of the metal case, thus ensuring a reliable attachment to the handle-bar.
Price. One Way, **2/3.** Two Way, **2 9.** Postage 1d.

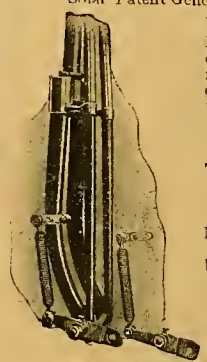


Motor Cycle Box Spanners.
Containing six sizes with tommy. English manufacture. Guaranteed.
Sizes $\frac{27}{32}$, $\frac{28}{32}$, $\frac{29}{32}$, $\frac{2}{3}$, $\frac{11}{32}$, $\frac{7}{16}$in.
Price **2/6** set. Postage 3d.

The Auxiliary Air Inlet.
Fits on inlet pipe. Gives a wider range of mixture. Useful on a hot day.
Price **3** - Postage 2d.

THE NEW SOLAR MANGIN LENS MIRROR LAMP.
This is our new lens mirror Head-light for motor cycles, of the same design and construction as our motor car lamps. Made of heavy brass reinforced and riveted in assembling, from the inside, which simplifies cleaning. Is 6in high and 4½in. long. Has removable powerful 4in. solar lens mirror reflector, front glass and ⅝ft. burner. Made for standard flat bracket, which fits in a casting concealed inside the back of lamp, the body of which is made in one piece. The bracket fastens to lamp with a set screw and to handle-bar stem with a clamp, so lamp turns. Intended to be supplied with gas from Solar Motor Cycle Generator or Tank and guaranteed to withstand motor cycle use, to be the most powerful 4in. lens mirror made, and projects the light a long distance ahead. Lamp only, **27/6.**
Solar Patent Generator, **22/6** extra.





"Matchless" Spring Forks.
Makes an old pattern machine up-to-date. Easily fitted, cheap, and highly effective. Hundreds of testimonials from delighted purchasers.
Price **15/6** per pair.

The "XI All" Spring Fork Attachment.
(For any power up to 5½.)
No side play. Increased safety. Riding made a luxury. Fitted by anyone in a few minutes.
No filing, drilling, or brazing.
Price, enamelled black, **15/-** per pair.

SPEED INDICATORS (THE COWEY).
Registers up to 60 miles per hour, with total mileage recorder, **84/-** The Jones ditto, **63/-** The Goodlad, registers up to 50 miles per hour, **42/-.** State year and make machine when ordering.

THE NEW MODEL MUD PROTECTOR.
With Side Wings.
Manufactured of best patent leather, strengthened with iron supports. It is attached by means of thumb screws to front mudguard, and can be fitted to any make of machine in one minute; protects both rider and motor from all dust and mud thrown up by the front wheel.
Price **5/-.**
Postage 4d. extra.

THE NORTH ROAD DUST AND RAINPROOF OVERALLS.
These meet a long-felt want; they can be instantly slipped on over the ordinary trousers, they fasten round waist with a leather strap and buckle. Being made in one piece they are a great protection to the stomach, also it is impossible for the rain to drive in as with the ordinary overalls. Made in three lengths—short, medium and long. Shaped to go over boot. Patent Side fasteners. Price, in fawn waterproof material, **16s. 6d.** Postage 6d.
Second quality ditto. **13/6** per pair. Double texture waterproof coat with collar and rain and windproof sleeves to match above, **21/-.**

1910 Illustrated Catalogue now ready, gratis and post free.

In answering this advertisement it is desirable to mention "The Motor Cycle."

Club News.—

The Harrogate and District M.C.C.

A hill-climbing competition was brought to a satisfactory conclusion on Saturday last in showery and boisterous weather. The hill is known as Kearly Cliff, and from start to finish is about 550 yards long. A flying start was allowed. The results are as follows:

Class II., single-cylinder touring mounts.—1st, J. A. Tindall; 2nd, A. B. Hughes; 3rd, Jim Mackay; 4th, H. W. Fortune; 5th, F. Strafford; 6th, J. E. Brooke; 7th, C. H. Bramley; 8th, W. F. Broadbank; 9th, C. F. Smith. All the above rode 3½ Triumphs. W. E. Grange, riding a 3½ T.T. Rex, was placed in Class VI. by the judges. Class IV., variable-geared touring machines.—1st, W. Fawcett (3½ Scott); 2nd, F. F. Topham (5 V.S.) Class V., passenger machines.—1st, H. W. Fortune (3½ Triumph and sidecar); F. F. Topham (5 V.S. and sidecar) failed. Class VI., for single-cylinder special machines.—1st, T. C. Atkinson (3½ Triumph); 2nd, W. E. Grange (3½ Rex); 3rd, E. R. Davies (2¾ Japumber). Final class, for the handsome trophy kindly presented to the club by Messrs. Pilchers, Ltd.—1st, H. W. Fortune (3½ Triumph and sidecar); 2nd, W. Fawcett (3½ Scott); 3rd, T. C. Atkinson (3½ T.T. Triumph); 4th, J. A. Tindall (3½ Triumph). T. C. Atkinson made fastest time of the day. H. W. Fortune's success in climbing the hill with sidecar and passenger creates a record, as it is the first time it has been accomplished on a single-geared motor bicycle.

Ayr and District M.C. opening hill-climb. The competitors at the starting point. The winner is third from the right. The upper photograph depicts a competitor crossing the starting line at full speed.

Ayr and District M.C.

The Asylum Brae, near Ayr, was the venue of another successful hill-climb organised by the A.D.M.C., and held on Monday afternoon last week. The ideal weather prevailing at the time attracted a goodly number of spectators and competitors alike, and with the surface of the course in excellent order and a strong wind blowing uphill, fast times were the order of the day. Twenty competitors took part, and the prize for fastest time was won by George Cocker in 32s., riding a specially-reconstructed 5 h.p. twin Rex. The awards were based on the following formula:

$$\frac{\text{Time in secs.} \times (\text{diameter of cyl.}^2 \times \text{No. of cyls.}) \times \sqrt{\text{stroke}}}{\text{Total weight in lbs.}}$$

		Time.	F.M.
1.	Chas. Carver (3. N.S.U.)	44.4 ..	6197
2.	J. Meredith (3½ Triumph)	34 ..	6227
3.	J. Johnstone (3½ Triumph)	33 ...	6274

TWIN CYLINDER CLASS.

1.	P. Armstrong (5 twin Rex)	34.2 ..	9811
2.	G. Cocker (5 twin Rex)	32 ...	10231
3.	A. Sommerville (5 twin Rex de Luxe)	39 ...	10599

The Lancashire M.C.C.

The above club held a petrol consumption trial on the 5th inst. Unfortunately, the weather was very tempestuous and only two members, out of a numerous entry list, turned out The course was thirty miles in length, and Dr. Ryan and Mr. Welden, the two competitors, riding 1910 Triumphs, were supplied with two and a half pints of petrol each. Mr. Welden finished with just over half a pint left and Dr. Ryan with a little less. The result will be announced later. Considering the fearful weather and the shocking state of the roads, the result was regarded as satisfactory.

The club is holding its annual hill-climb on June 16th. A sub-committee has been appointed to find a suitable hill, and it is proposed to handicap all previous winners and riders of special machines, so that all the members will, as far as possible, have an equal chance of winning.

Leicester and District M.C.C.

On the 1st inst. there was an enjoyable inter-club meeting with the Nottingham and District M.C.C. at Kenilworth.

The date fixed for the hill-climb is May 19th (Thursday). There will be four classes, *e.g.*, Class I., lightweight machines under 340 c.c.; Class II., over 340 c.c. but not exceeding 500 c.c.; Class III., exceeding 500 c.c.; Class IV., open class (Tourist Trophy models will be allowed to compete in this event). The entries close on the 14th inst. Competitors are urged to be at the headquarters not later than 2.15 p.m. to be weighed in.

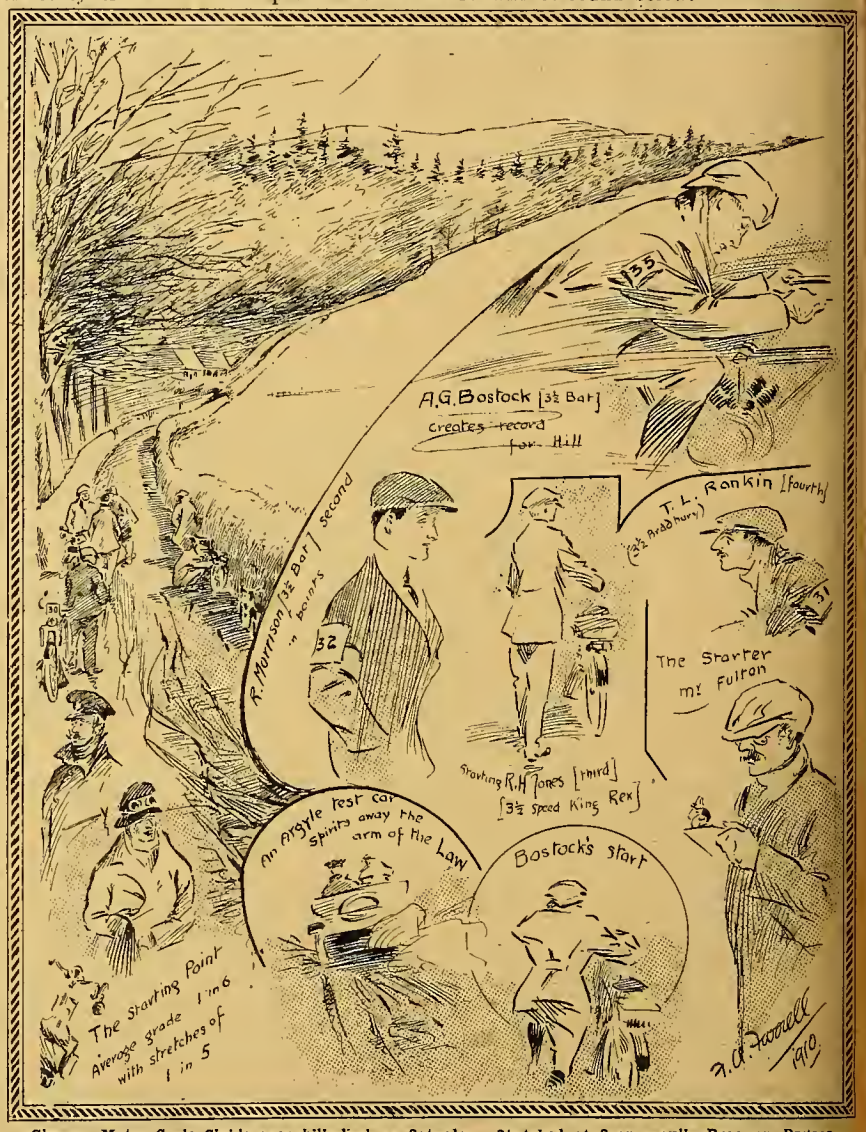
Club News.—

Birmingham M.C.C.

The club will attend the Stratford-on-Avon Meet on Whit-Monday. On Whit-Tuesday the annual reliability trial for the Sangster Cup will be run off. The run is to Lincoln and back. Start Perry Barr 8 a.m., finish Imperial Hotel, Birmingham, 6 p.m. Time of arrival at Lincoln, 12.15 p.m. First prize, Sangster Challenge Cup; second prize, gold medal; silver medals to all accomplishing meritorious performances; bronze medals to all who do the journey within nine and a quarter hours, if they have not won any other prize. A big muster is anticipated.

Glasgow M.C.C. Open Hill-climb.

The above club held a hill-climb last Saturday on Stonymoulin Brae, near Balloch. The contest was open to motor cyclists in Scotland. Owing to the wet state of the hill there were not many starters. The twin class was most disappointing. Out of an entry of eight only one succeeded in reaching the top. The hill was a real test for any machine, being 1,230 yards long and having gradients of one in five in several places, but no severe bends to call for any great skill on the part of the rider. The first performance of merit was that of R. Morrison on a 4 h.p. Bat, which he had ridden over from Edinburgh in the morning. He was followed by R. H. Jones, who travelled up well on his 3½ h.p. Speed King Rex. Each competitor was allowed two runs up. R. Morrison had a nasty skid some hundred yards from the top on his second ascent and finished practically broadside across the road. This spoilt his time by several seconds, A. G. Bostock, whose petrol had been shutting off on his first ascent owing to the excessive vibration from the bad road surface, tied down his petrol tap, and came roaring up the hill, making fastest time of the day. T. L. Rankin was only three-fifths of a second slower on his Bradbury, but his large capacity brought him down on formula. Many enthusiastic motor cyclists turned out to see the climb in spite of the bad weather. Results:


A.G. Bostock [3½ Bat] creates record for Hill
R. Morrison [3½ Bat] second
T. L. Rankin [fourth]
The Starter
Starting R.H. Jones [third] [3½ Speed King Rex]
An Argyle test car
Bostock's start
The Starting Point
Average grade 1 in 6 with stretches of 1 in 5
1910

Glasgow Motor Cycle Club's open hill-climb on Saturday. Sketched at Stonymoulin Brae, nr. Balloch.

SINGLE CYLINDERS.

	First run.	Second run.	Fig. of merit.
A. G. Bostock (3½ Bat)	1.35	1.25	765
R. Morrison (3½ Bat)	1.28	1.26	728
R. H. Jones (3½ S.K. Rex)	1.33	1.33	692
T. L. Rankin (3½ Bradbury)	1.31	1.25⅗	654
H. W. Ballardie (3½ Triumph)	2.7	2.2	438
G. W. Orr (3½ Ariel) ... Stopped and restarted. —			

TWIN CYLINDERS.

W. Alexander (5 Indian)	2.24	—	282
W. Deans (5 Indian)	Failed.	Failed.	
D. S. Baddeley (6 Baddeley)	Failed.	--	
—— (6 N.S.U.)	Failed.	--	

York County M.C.C.

The first quarterly trial of the above club arranged for last Saturday was postponed owing to the death of His late Majesty the King. It has been arranged to hold the run on the 22nd, starting from the Wellington Inn at 10 a.m.

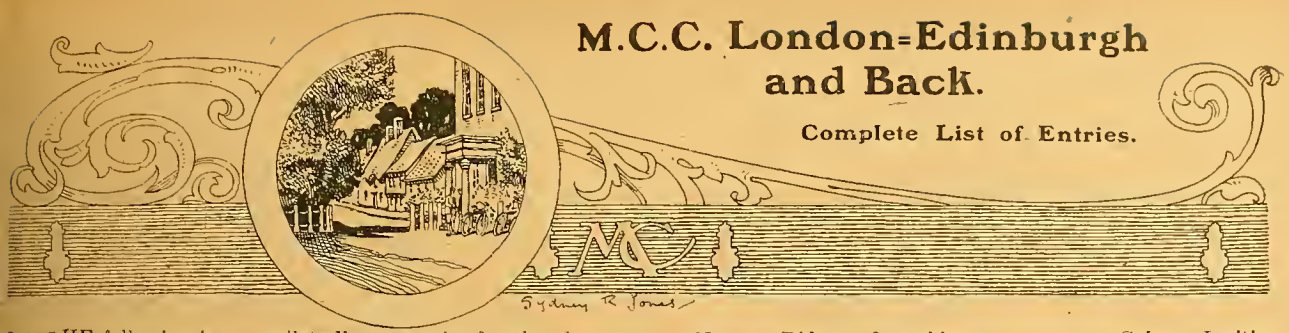
M.C.U.I. (Ulster Centre).

The hill-climb in connection with the reliability run to Ballycastle, reported in our last issue, was decided on a special formula which will be found below.

Time in secs. + cub. capacity

Weight of rider and machine

Results: 1, M. J. Lindsay; 2, Cecil Rea; 3, D. H. O'Flaherty; 4, J. J. Kennedy; 5, J. Stewart; 6, Jas. Martin (all on 3½ h.p. Triumphs); 7, B. J. McManus (3½ h.p. Premier); 8, B. D. Capper (3½ h.p. Triumph); 9, S. P. Corry (5 h.p. Indian); 10, L. MacLaine (3½ h.p. Triumph); 11, G. Simpson (4 h.p. Indian); 12, C. R. Martin (3½ h.p. Triumph); 13, Dunville Coates (3½ h.p. Triumph). J. Lavery (3½ h.p. Triumph) had a stop on the way owing to a burst tube, and Foster Coates and J. Kane, both on Triumphs, had trouble on the hill. The riders were started by E. B. Waring, secretary of the centre, and T. Moles acted as timekeeper at the top of the hill, being assisted by the president (Mr. R. G. Lindsay) who is taking a very practical interest in the various competitions. On the 14th inst. a hill-climbing competition will take place at Magheramorne, Co. Antrim. The centre is at present in a very flourishing condition, new members being enrolled at every committee meeting.



M.C.C. London-Edinburgh and Back.

Complete List of Entries.

THE following is a complete list of entries for the above run, kindly supplied by the energetic trials hon. secretary, Mr. Harry G. Bell. The Motor Cycling Club members will assemble at the Old Gatehouse, Highgate, to-morrow (Friday) evening, at eight o'clock, and the first motor cyclist (the captain, E. B. Dickson) will be despatched at 9 p.m., the remainder following at half-minute intervals until the last competitor to enter (A. R. Abbott) will be sent away at 9.57 p.m. It will be noted that 97 motor bicyclists and 16 passenger motor cyclists are taking part, a total of 113. Last year the total reached 112, made up of 91 motor bicyclists and 21 passenger motor cyclists.

Motor Bicycles.

No.	Rider and machine.	Cyls.	Ignition.
†1.	E. B. Dickson (5 Indian)	2	M.
†2.	E. Gwynne (7 V.S.)	2	M.
*3.	F. Smith (5-6 Clyno)	2	M.
4.	H. M. Barton (3½ Humber)	1	M.
5.	Capt. P. J. Harkness (2¼ Enfield)	2	M.
6.	F. E. Wasling (2¼ Enfield)	2	M.
*7.	F. Philipp (3½ Scott, two-stroke)	2	M.
8.	Mrs. Cooke (3½ Triumph)	1	M.
9.	C. C. Cooke (3½ Triumph)	1	M.
10.	P. Janson (3½ Bat)	1	A.
*11.	G. L. Fletcher (2¾ Douglas)	2	M.
12.	W. Hornsby (4 Cheviot, J.A.P.)	1	M.
14.	W. M. T. Atkinson (3½ Cheviot)	1	M.
*15.	G. Wray (3½ Bradbury)	1	M.
†16.	J. S. Holroyd (1½ Motosacoche)	1	M.
†17.	B. G. Fray (1¼ Motosacoche)	1	M.
18.	G. Moore (3½ Triumph)	1	M.
*19.	H. Gibson (3½ Bradbury)	1	M.
20.	J. Stout (3½ Triumph)	1	M.
21.	R. B. Timmis (8 Matchless)	1	M.
22.	C. B. Ferguson (3½ Triumph)	1	M.
*23.	A. T. Stanton (3½ Bradbury)	1	M.
24.	H. F. Inkson (3½ Excelsior)	1	M.
†25.	W. A. Sale (Rex)	1	M.
†26.	F. Mussell (3½ Rex)	1	M.
*27.	R. Ellis (5 Rex)	2	M.
†28.	H. Robert (3½ Phelon and Moore)	1	M.
29.	W. Pratt (3½ P. and M.)	1	M.
30.	P. Shaw (3½ Phelon and Moore)	1	M.
*31.	E. Kickham (2¾ Douglas)	2	M.
32.	H. G. Byng (3½ Phelon and Moore)	1	M.
33.	S. G. Byng (3½ Phelon and Moore)	1	M.
34.	T. S. V. Phillips (1½ Motosacoche)	1	A.
*35.	J. V. Robinson (2¾ Douglas)	2	M.
36.	Capt. Sir R. K. Arbuthnot (3½ Triumph)	1	M.
37.	S. T. A. Oldfield (2¾ Douglas)	2	M.
38.	G. Lee Evans (5 Indian)	2	M.
*39.	S. Wright (3½ Humber)	1	M.
40.	F. H. Mullett (3½ Triumph)	1	M.
42.	B. C. Howard (5 Vindec Special)	2	M.
*43.	W. L. Squire (3½ Quadrant)	1	M.
†44.	B. A. Hill (3½ Kerry-Abingdon)	1	M.
†45.	W. Cooper (3½ Bradbury)	1	M.
46.	J. Eastwood (3½ Bradbury)	1	M.
*47.	Stanley Webb (3½ Triumph)	1	M.
48.	P. Platt (3½ Bradbury)	1	M.
49.	R. M. Brice (3½ Brown)	1	M.
50.	G. W. Raper (6 N.S.U.)	2	M.
*51.	G. Purchase (3½ Triumph)	1	M.
52.	S. W. Carty (3½ N.S.U.)	1	M.
53.	L. A. Baddeley (4½ Baddeley)	2	M.
54.	D. S. Baddeley (6 Baddeley)	2	M.
*55.	Eli Clark (2¾ Douglas)	2	M.
56.	H. W. Turner (3½ Triumph)	1	M.
57.	P. E. Tolfree (3½ Matchless)	1	M.
58.	F. C. Dee (7-9 V.S.)	2	M.
*59.	A. V. Deacock (2½-3 Wanderer)	2	M.
60.	J. Godsal (6-7 Bat)	2	M.
61.	A. C. Robbins (3½ Humber)	1	M.
62.	W. O. Bentley (5 Indian)	2	M.
*63.	H. Karslake (4 Dreadnought)	1	A.
64.	F. A. Hardy (5 V.S.)	2	M.
65.	C. Janssen (2¾ Moto-Reve)	2	M.
66.	R. C. Davis (5½ Griffon)	2	M.
*67.	W. C. Wasley (2¾ Douglas)	2	M.
68.	J. Culley (3½ Triumph)	1	M.
69.	S. C. Perryman (3½ Ariel)	1	M.
70.	J. Stevens (2 Wolf)	2	M.
*71.	E. C. W. FitzHerbert (5 F.N.)	4	M.
72.	— Stevens (3 Wolf)	2	M.
73.	A. J. Stevens (2 Wolf)	1	M.
74.	Dr. Moss-Blundell (3½ Triumph)	1	M.
*75.	F. C. North (3½ Ariel)	1	M.
76.	L. Vedy (3½ Phelon and Moore)	1	M.
77.	Dr. C. G. Watson (4½ F.N.)	4	M.
78.	P. R. Heighton (3½ Humber)	1	M.
*79.	C. B. Duberly (3½ Ariel)	1	M.
80.	G. E. Roberts (3½ Rex)	1	M.
81.	Dr. C. J. Stanley (5 Indian)	2	M.
82.	A. G. Peppercorn (3½ Triumph)	1	M.
*83.	G. Brough (3½ Brough)	1	M.
84.	W. Rice (3½ Rex)	1	M.
85.	H. E. Davison (3½ Rex)	1	M.
†86.	G. Jacobs (5 Vindec)	2	M.
*87.	A. Webster (2¾ Handy-Hobart)	1	M.
88.	W. E. Haines (3½ N.S.U.)	1	M.
89.	E. H. Chaytor (7 Lurquin-Coudert)	2	M.
†90.	A. J. Gilpin (2¼ Enfield)	2	M.
*91.	J. C. Collins (5-6 Roc)	2	M.
92.	E. R. Hibbert (5 Rex)	2	M.
†93.	Rex Mundy (3½ Triumph)	1	M.
94.	J. H. Slaughter (3½ Ariel)	1	M.
*95.	W. W. Douglas (2¾ Douglas)	2	M.
96.	F. Watson (3½ Triumph)	1	M.
†97.	A. L. Colyer (3½ Humber)	1	M.
98.	Harry G. Bell (2¼ F.N.)	1	M.
*99.	——— (3½ Scott, two-stroke)	2	M.

Passenger Motor Cycles.

101.	E. J. Pocock (6 Matchless)	2	M.
†102.	V. Olsson (J.A.P.)	2	M.
†103.	E. W. Brighten (8 Chater-Lea, J.A.P.)	2	M.
†104.	W. Lamm (5 V.S.)	2	M.
105.	J. T. Rankin (5 Rex)	2	M.
†106.	E. Frasetti (7 V.S.)	2	M.
107.	A. Mabon (3 Mabon)	2	M.
	H. Williamson (3½ Rex Sidette)	1	M.
108.	W. Chater-Lea (7-9 Chater-Lea)	2	M.
†109.	J. Winslow (5 Rex)	2	M.
†110.	H. C. Griffen (3½ Premier)	1	M.
111.	W. Watson (9 Chater-Lea, J.A.P.)	2	M. & A.
112.	A. H. D'Aeth (7 V.S.)	2	M.
113.	G. Rowden (7-8 Bat)	2	M.
114.	E. T. Newton-Clare (5-6 A.C. tricar)	2	M.
115.	A. R. Abbott (8 Matchless)	2	M.

With the exception of the A.C. tricar, all are sidecars.

*Entrants for M.C.C. Challenge Cup.

†Entrants for M.C.C. return journey medals.

TINKERING WITH A TWIN.

LAST Saturday week I met Jackson humming along the main road towards home. He pulled up when he saw me, and I noticed he was looking rather glum.

"Hullo!" I said, "Where been?"

"Oh, a spin round with Huntly; Westerham way and round through Tonbridge."

"Decent ride?"

"Not bad."

I looked at his clothes. "Been cutting out the pace, haven't you?"

He nodded. "Huntly's hot stuff, you know; fact is I've got the hump. He's tied me up badly all along. We tried Westerham, and I stuck at the bend, and at River Hill he simply walked past me. Makes me sick! Same engine, too, and his a year older and the heavier man."

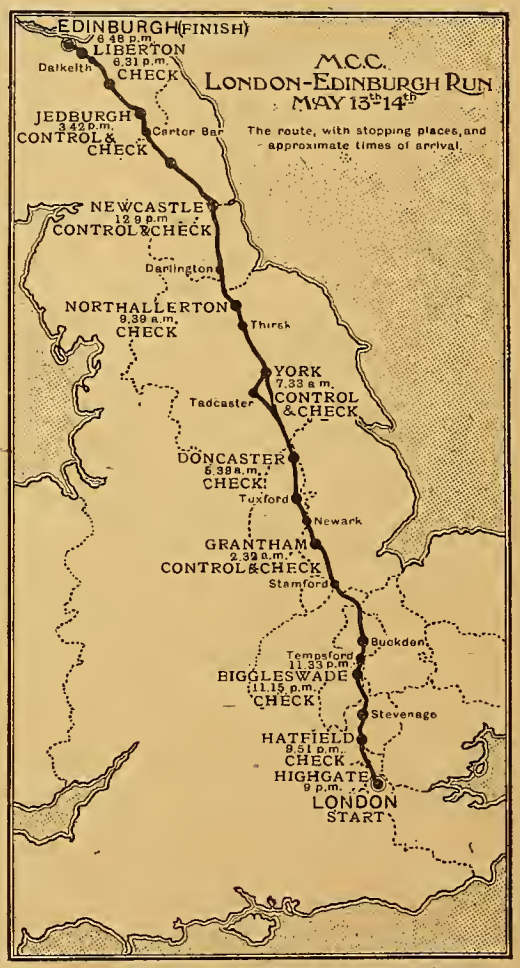
I smiled. I know Huntly. I fancied myself a bit in the "engine efficiency" line, but Huntly—I could quite understand poor Jackson had not had much of a show.

I looked down at his engine. "Been pretty hot, hasn't it," I said, tapping the exhaust pipe with my toe.

"Hot! Hot isn't the word for it. Had the carburetter on fire twice. Got the fair hump to-day," he repeated. "Look here, old chap! Candidly do you think I'm getting the best out of this crock?"

Dear Jackson! he looked so serious I hadn't the heart to smile. The best out of it, indeed! There are lots of things Jackson knows quite a lot about; and there are no flies, so to speak, on Jackson as a business man, but mechanics—well!

However, I like Jackson, he is a nice chap, so I simply said: "Well I don't know; wouldn't be any harm in having a look over it, would there; doing anything to-morrow? No! Bring it round to my place, and we'll have a look over it together." Agreed, and off goes Jackson as fast as he can. The engine has cooled, and J. is evidently going to do his best to make it piping hot again.



The route of the 1910 London-Edinburgh Run. This year's starting time from Highgate is 9 p.m.

Some Causes of the Sluggish Running.

Two nights later we look over the machine together.

"Turns rather stiff. How often do you run your old oil out of the crank case, Jackson?"

"Oh, goodness knows; haven't touched it for ever so long."

About half a pint of filth is run out of the crank case, a swill out with paraffin, and three new charges of oil given.

"Cylinders off lately?" "No." "Better look, don't you think?" Cylinders come off, and about an eighth of an inch of deposit on piston heads and cylinder domes cleaned off. Rings renewed lately? One a little discoloured; any spare rings? Yes, a new one while we're about it. Right. Now for the valves. Jackson is enthusiastic about the "grinding in." I don't attach a very great deal of importance to it, but we give them a turn while we are at it, but very carefully, with frequent lifts and a most scrupulous clean with paraffin afterwards. Now the springs. Exhausts are weak, and, what is more particular, the front is stronger than the back; new ones on here, and new cotters while we are about it—they are getting rather thin in the middle. There is too much clearance over these tappets. We must see to that presently. Either heat the stem of the valve and hammer it out a little, or, better still, braze a very thin steel plate on the tappet itself. Oh, those inlet valves! The springs are far too weak, the cotters and shoulders are worn, and consequently the valves open far too much ("No wonder your carburetter caught fire, Jackson"), and when the heads are pressed together one pushes the other nearly full open before it starts to open itself. This will never do. New springs first; seem about the right tension and both alike, but we will make sure of that after. First, about this opening, the slot in the valve is fairly long, so we will see if we can find some deeper cotters. That is better, but still too much; a little steel washer on the shoulder of the seating small enough to clear the spring. Ah! that is more the thing—about 3-32nds now.

Jackson thinks this amount of opening too little.

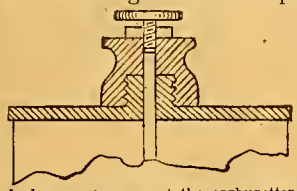
"Why, man, it will never get any gas," he says.

"It will get quite enough, old chap, and it will set down to a bare eighth before you have ridden far. Your poor engine has had indigestion all along as a matter of fact." Now the heads together again. One a little bit stronger than the other; very slight, if it were more we would cut a bit off the spring, but as it is we will just try pulling the weaker one out a bit. Now they're right. New copper washers, but first let us scrape that seating nice and clean. Good.

What about this carburetter. Longuemare, eh! with side air slots. We will just have that all down and

Tinkering with a Twin.—

clean out each slot. I doubt whether you get enough air for that twin at anything like speed. Adapter and jet? 22 and 10 ought to be about right. Ah! cap missing from the top of the needle valve (they always are); a loose fit in the guide too. We must make a damper to prevent the carburetter flooding through the needle jumping about.



A damper to prevent the carburetter flooding owing to the needle jumping about. A lock-nut enables the screw to be fixed in any desired position.

This can be adjusted to allow any lift desired, and I explain to Jackson that he will soon find out the adjustment that gives him the best all round results. Well, we start the engine up, and it runs like a bird, but when I short the plugs alternately one cylinder is decidedly faster than the other. Face up the contacts and try again, adjusting each screw with the cylinder running until we get it doing the highest r.p.m. we can. Both going like smoke now, but when run separately still a slightly higher speed on the front one. Not much, still enough to worry me. We try everything to bring the back cylinder up to it; no difference. Very well, if we can't get the back cylinder up to the front, we must get the front down to the back. Jackson demurs—"the front cylinder is a daisy, why not let it alone?" I explain to him the golden rule of synchronisation, and a half-turn of the front contact screw does the trick.

Now, Jackson, I think with luck you ought to get the benefit of that extra two or three stone of Huntly's.

. . . . . .

The other evening as I reached the top of Poll Hill, outward bound, somebody was coming up like a streak of greased lightning—Jackson sure enough. His face was all smiles when we both pulled up.

"Well, what luck?"

"Grand! River Hill all out, cool at the top, too! Any speed you like on the level. Huntly's behind somewhere. Old man, you're a brick."

I looked across at the little Poll Hill Arms.

"On an occasion like this, Jackson," I began——

He smiled and took my arm, "Come on," he said. "This is up to me!"

T. E. HENINGHEM.

A FRENCH ROTARY VALVE ENGINE.

WE are indebted to *La Vie Automobile* for the following interesting description and diagrams of a rotary valve engine, which is the invention of a Frenchman, Monsieur H. Boissier. The patent drawings are those of a four-cylinder water-cooled engine, but the valve system would be just as easily applied to a single or twin-cylinder motor cycle engine. It will be noticed that the cylinder and valve ports are water jacketed. We are aware that rotary valve engines on similar lines have been designed and tried in England, but the diagrams so clearly illustrate the cycle of operations that they are well worth reproduction.

Situate on the top of the cylinder, and cast with it, is a cylindrical valve chest A, in which rotates a valve or tap B mounted in ball bearings, which are held in adjustable cages in such a manner that the rotating part of the valve can be adjusted in every direction by means of set screws until it is absolutely concentric with the sleeve in which it rotates. The engine being of the four-cycle type, the sleeve or valve is geared to turn at half the speed of the main crankshaft, and is driven either by a chain or bevel gearing. The inlet D is on the left and exhaust E on the right.

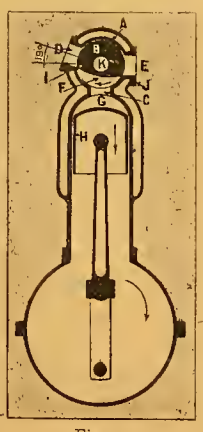


Fig. 1.

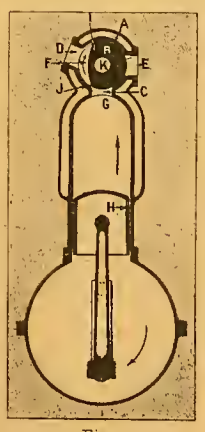


Fig. 2.

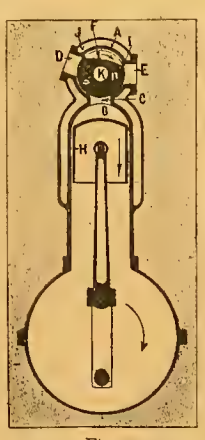


Fig. 3.

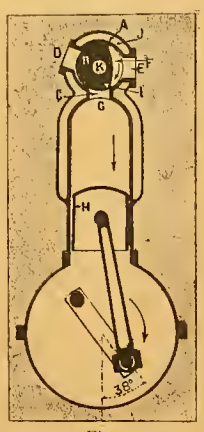


Fig. 4.

A. Valve chest. B. Distributing valve. C. Passage between distributing valve and cylinder.
D. Inlet. E. Exhaust. F. Slot in distributing valve. G. Cylinder. H Piston.
I. Front cut-off on slot F. J. Back cut-off on slot F. K. Distributing valveshaft.

Fig. 1 shows the position of valve and piston at dead centre of exhaust and inlet strokes. The edge of the slot I, in the distributing valve B, is just about to uncover the port D, through which the mixture is admitted to the engine.

Fig. 2 shows the piston H at the end of the induction stroke. The edge J of the slot in B has now arrived in such a position that the communication port G from valve chamber to cylinder is closed, preventing the escape of gas which has entered the cylinder.

Fig. 3 shows the compression stroke. B has continued to turn in the direction of the arrow, but no slot or opening having uncovered the orifices G D E, the gas is compressed in the cylinder.

In fig. 4 B still continuing to turn, the edge of the slot I has now arrived in the position indicated, and further movement of the crankshaft and valve B in the direction of the arrow uncovers the orifice G and the port E by which means the exhaust gases are expelled from the cylinder by the rising piston.

The great question in connection with a design of this description for motor cycles is whether the rotating sleeve could be kept cool enough without water-cooling, and the difficulty of providing the necessary lubrication.

The Vibrationless A.S.L.

Forks were used by Mr. HARRY MARTIN in his recent

WORLD'S RECORD

which conclusively proves the SPEED of the Air Spring device. We shall be pleased for you to test the comfort for yourself.

Mr. Martin's Opinion.

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"Riding is far less tiring."

"Extremely light on tyres."

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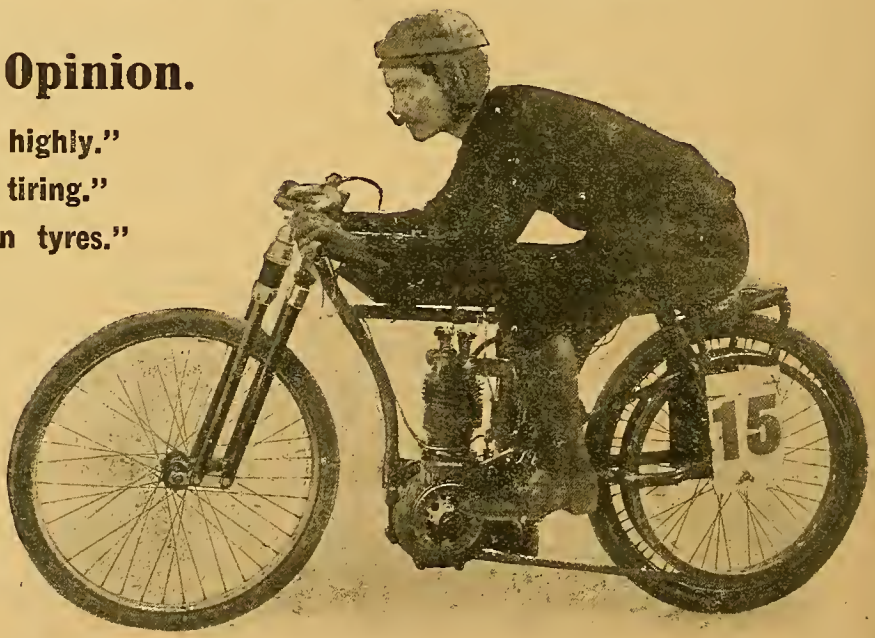

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ALL Vibration and Road Shock absorbed.
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STAFFORD.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

Pitting of Trembler Points.

Q. The contacts on my trembler coil soot up every few miles, thereby causing misfiring. The contacts are pure platinum. Can you tell me the reason for the above, and how can I cure it? The accumulators are always kept well charged.—G.V.L.

A. The trouble is probably due to the fact that the coil is fitted with an inefficient condenser. Either you set the adjusting screw bearing too hard on, or the points are not pure platinum but of some imitation metal. Before having the coil overhauled, it would be cheaper to try genuine iridium points such as the Jebron.

Excessive Petrol Consumption.

Q. I have a 2¾ h.p. motor cycle with Longuemare carburetter, seven spray, warm air pipe to exhaust, which seems to use up a lot of petrol. On a recent run I used half a gallon in nineteen miles. Is that not excessive? Can you tell me the cause and how to alter it? There is no leakage anywhere.—A. C.

A. We cannot believe that the engine is using such a lot of petrol. There must be a leakage from the joint or the carburetter itself is flooding badly owing to bad fit of the needle valve, or too high a level. The consumption is certainly most excessive. After attending to the matters named, you might try stopping up one of the slots in the jet and see if this will improve matters.

A Test of Silencers.

Q. Could you tell me a practicable method of testing with approximate accuracy the efficiency of various types of silencers and obtaining rough ratios of comparative efficiency, and that without an excessively large and expensive plant?—F. H. R.

A. The testing of a silencer requires a somewhat extensive plant. In the first place, you would have to give the engine a brake test to prove the efficiency of the silencer as regards power and absence of back pressure, and secondly, you would have to test it for sound, and the simplest way of doing this is to use a device which was made by Col. Holden, R.A., F.R.S., called an "Audiometer," consisting of a microphone, in the circuit of which resistance was put. The resistance was first of all cut out, and the sliding block moved along a coil of wires until the exhaust was inaudible. The amount of resistance employed to render the exhaust inaudible was then measured and compared with other silencers tested. This method was employed in the A.C.U. Silencer Trials held a few years ago. A practical test on the road would be to run the engine "all out" for a mile to the foot of a steep hill, and note how far the machine ascends with the different silencers fitted, every other adjustment to remain unaltered.

Level of the Petrol Too Low.

Q. I am in trouble with my Fafnir engined machine with spray carburetter. I have had all the engine down since about November and just put it together. I tried it on the stand and it fired after about three turns of the pedals, but would only go for short periods at a time after flooding the carburetter. If I kept pushing the plunger of the float chamber down to keep it flooded it went as right as could be, but as soon as I released the plunger it stopped after about ten or fifteen seconds. I have since had the carburetter to pieces, and everything works all right, such as the float and the needle, but when I filled the float chamber with petrol I could see the spirit oozing out of the jet in the spray chamber. I took the feed pipe off from the tank, thinking perhaps it was not quite clear, and cleaned it with a piece of wire, then put all together again. I tried it on the stand again, and it seemed slightly better, so took it on the road. The first time it ran for about fifty yards and stopped, flooded carburetter again, and this time it went about 200 yards, but on slowing down to round a corner it stopped again. Kindly locate the difficulty.—F.J.J.

The Indian trophy, measuring 1 in. deep and 16in. wide, to be presented to the first private owner riding an Indian motor cycle to finish in the Tourist Trophy Race.

A. The trouble seems to be due to the fact that the level in the float chamber is wrong. Get an old jet, cut it down, and fit a piece of brass or copper pipe over it, exactly the length of the standard jet, so that you will be able to see how far up this pipe the petrol comes. You will probably find that it is far short of the top, and you should adjust the weight on the needle until the petrol comes within ⅛in. of the edge of the pipe. If the carburetter is a Longuemare merely remove the jet. Then put back the standard jet, and you will probably find the trouble cured. The matter is gone into fully in the latest edition of "Motor Cycles and How to Manage Them."

An Absence of Power.

Q. I have a 3 h.p. motor cycle which, although it has gone well in the past, now has a peculiar way of sometimes starting well with full power, but after two or three minutes diminishes in the power of its explosions so that they sound weak and muffled. I have gone over everything that I can think of, and I find that the spark is all right, also the carburetter and the timing. After standing a few minutes I sometimes have a difficulty in starting, and when started have to keep pedalling until speed and power are developed. What is the probable explanation?—H.J.P.

A. The trouble is one which is difficult for us to diagnose without seeing the machine. Carefully examine your valves, and see that there is a slight clearance between the stem and the tappet. Probably owing to the heat the valve stem becomes elongated, so preventing the valve from closing. The remedy is to file ⅛in. off the ends. Also make sure that the valves are working properly and moving freely in their guides. Also try new valve springs. If the compression of the engine will not bear your weight on the pedals for half a minute, that would account for the absence of life in an engine.

A Single-cylinder Magneto on a Twin.

Can a single-cylinder magneto be fitted to a twin engine, say, on the principle of the Clément-Garrard type, whose cylinders, as you are doubtless aware, are placed very close to each other in the V? Now, this question, let me tell you, is merely the outcome of a suggestion to a friend of mine, who happens to be the owner of a twin Clement, built in the form of a lightweight, and which also is very fast for a 3 h.p. machine. Only quite recently he had trouble with the sparking coil, and it took some considerable time before he really found out the cause of the very slight misfiring. During the time of this trouble in ignition, several suggestions were put to the owner of the Clément-Garrard to fit a twin-cylinder magneto, but he does not think by spending £6 on this particular item that he will get any more value for his machine when the time comes to sell it. He is under the impression that it is possible to fit a single-cylinder magneto by making alterations to the make and break contact, and using in conjunction a K. and C. high-tension distributer. Please oblige with your views.—M. E. M.

We do not think that your friend would find that a single-cylinder magneto would work well with a twin-cylinder Clément-Garrard, although as the angle of the twin-cylinder is very small, it is quite possible that he would be able to get a spark in each cylinder, but we fancy that the effective range of advance and retard of the ignition would be so much reduced that the whole arrangement would not prove satisfactory. We have given this matter very careful consideration, and have come to the conclusion that to get really good results with any V type engine a specially designed magneto would certainly be essential. Should your friend try the experiment and be successful in obtaining satisfactory results we should be most interested to hear further from you, but, as suggested above, it seems improbable that the system would work well. Early V-type engines gave trouble through not having a specially made magneto.

Overheating and Knocking on Hills.

My 1910 3½ h.p. motor cycle will not climb hills such as Dashwood after a non-stop run of five miles, and will not keep up thirty miles per hour on the level for more than half a mile, but slows down and knocks, and no alteration of the levers will induce it to pick up. I can go up Dashwood fast with a cold engine. The engine used to get excessively hot, so I put a smaller jet in, but now I cannot get any speed at all over about 25 m.p.h. Formerly it used to require full air with one-third gas, and now it requires scarcely any air at all. Do you consider that I should improve matters by replacing the original jet and filing out the extra air holes? I oil every twelve or fourteen miles with Price's Huile de Luxe. The gear is 4¾ to 1. Is this too low?—D.G.R.

Possibly the trouble is due to an excessive amount of carbon deposit on the cylinder head and piston, and we should advise you to clean this off as soon as possible. It may be that the spark should be timed earlier. Yes, certainly put back the original jet and file out the air holes. We presume you understand that with a smaller jet a less quantity of air is required. Are you sure you manipulate the levers properly in climbing hills? The procedure is to open the throttle wide if the gradient demands it, and, should the engine show signs of slowing down or knocking, close the extra air lever gradually. The spark may be very slightly retarded for the last few yards of a very steep knuckle. The gear is slightly too low for an 11 st. rider. If you weigh between 11 and 14 st. the gear is about right.

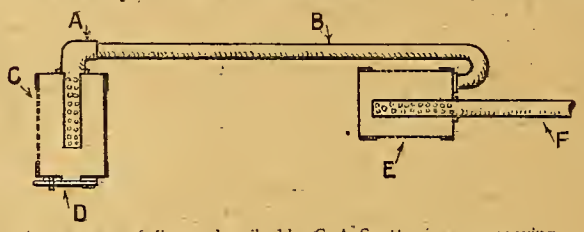
READERS' REPLIES.

Throttling Down a Four-cylinder.

B.B.'s trouble in slowing down with a 5-6 h.p. F.N. is, I feel sure, due to excessive amount of opening of the inlet valves. As a rider of one of these fine mounts I find $\frac{1}{16}$in. opening is ample.—H.A.U.

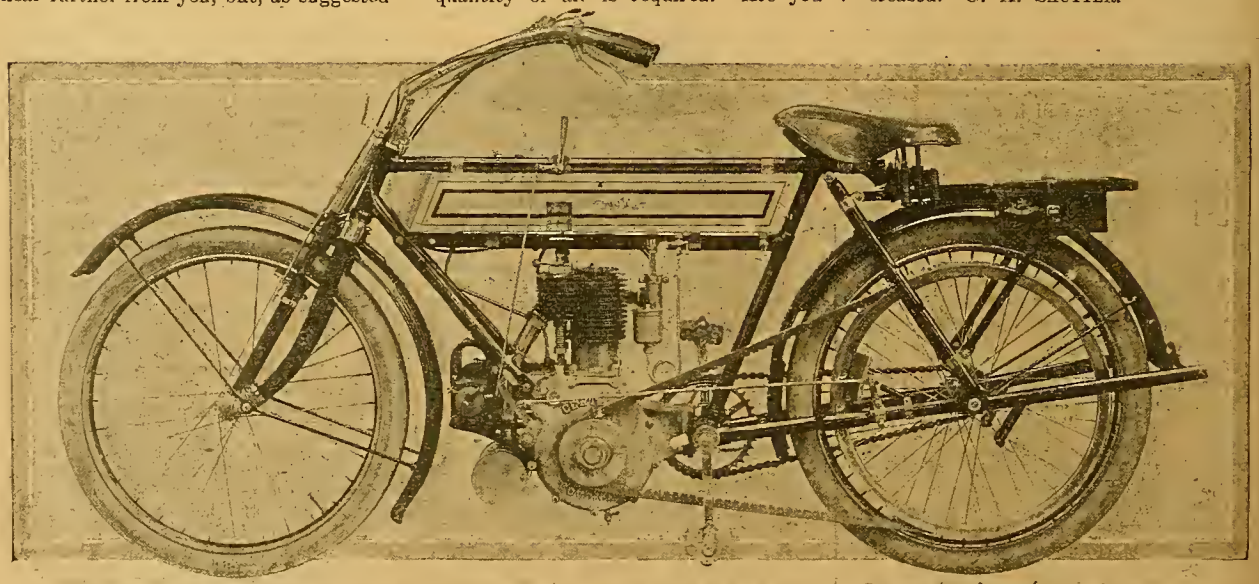
A Silencer at Rear of Machine.

With reference to "G. B.'s" enquiry about fitting a silencer at the rear of a motor cycle, I may be able to give some information of interest. I have had a double silencer fitted to my 4 h.p. twin N.S.U. for over a year, and find it a great boon, especially when passing frisky horses. I enclose a rough sketch of mine to show what I mean. With the cut-out open it is much more silent than most machines I have seen, or, rather, heard. With the cut-out shut it is absolutely noiseless, save for the clicking of the valves. I only use maximum silence when the speed does not exceed fifteen miles per hour, as it has a tendency to overheat the engine, but with the cut-out open it is silent enough for anything, except a horse that performs a cake walk when it sees anybody in goggles. The pleasure obtained by using a silent silencer is greatly increased.—G. A. SAUTTER.



Arrangement of silencer described by G. A. Sautter in accompanying letter.

A. Elbow. B. Copper piping ¾in. inside diameter. C. Row of $\frac{1}{16}$in. holes. D. Cut out worked by Bowden lever on the handle-bar. E. Original silencer. F. Exhaust from engine.



The new pattern 2¾ h.p. Centaur roadster model. It will be remembered that we described and illustrated the main features of the T.T. and roadster model Centaurs in our issue of April 21st. The engine of both types measures 85 × 87 mm., the mechanically-operated valves being situated in front.

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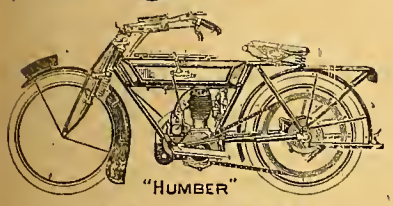
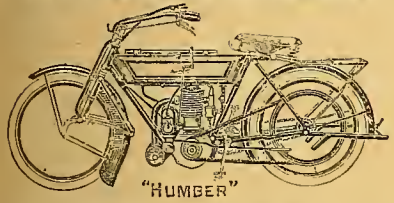


1909½ HUMBERS

brand new. These you can hardly tell from 1910 models, being fitted with improved pattern silencers, spring forks larger pulleys Roc licensed two-speed gear, h.-b. control, registered tank, high tension magnetos, Dunlop tyres, oil pump operated by foot, stand and carrier, toolbag with all tools fitted to handle-bar. Fully guaranteed.

£44, with sidecar.
£40, less sidecar.

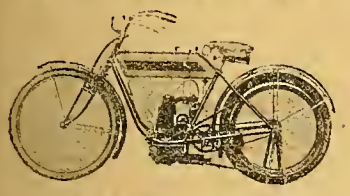
1909½ Single Speed Humbers.



SIX ONLY ..... £33 15s.

Druid spring forks, Bosch magnetos, h.-b. control, pedalling gear, stand and carrier, toolbags, tools, number-plates, etc. Usual price £45. A clear saving of £11 10s. Only Booth's can offer such value

3-6 h.p. Rex Lightweights.



1908 models, magneto, very low built,
Each .. .. .. **£16 10s.**, or exchange.

NEW 1909 ARNOS.

We have a few Brand New 3½ h.p. Models, fitted with magnetos, h.-b. control, complete with stand, etc.
List price £45. Our price, £28 10s. Or exchange.

Other Sidecar Machines.

5½ h.p. BROWN, twin, 1908 magneto, free engine **£25 10**
5½ h.p. REX DE LUXE, Roc clutch, magneto.. **£21 10**
5 h.p. Twin REX, 1908, magneto, spring forks.. **£24 10**
3½ h.p. HUMBER, 1909, two speeds, soleid only **£18 10**
3½ h.p. BAT, magneto, two speeds, spring frame.. **£24 10**

Beautiful Solo Mounts.

3½ h.p. BRADBURY, 1909 model **£26 10**
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5 h.p. REX Twin Tourist, 1908 model **£21 10**
1¾ h.p. N.S.U. Lightweight, magneto, 1908 model **£16 10**
3-6 h.p. REX Featherweight, magneto, 1908 model **£16 10**
5 h.p. Twin REX Speed King, magneto, 1908 model **£21 10**
6 h.p. Twin PHANOMEN, magneto, Nala 2-speed **£30 0**
3½ h.p. HUMBER, magneto, very nice order.... **£16 10**
2 h.p. MINERVA, magneto, 26in. wheels, spray **£3 15**
2½ h.p. ARIEL Lightweight, vertical engine, 26in. wheels H.B. control **£3 15**
2 h.p. MOTO-REVE, 1909, nearly new **£24 10**

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MOTOR BICYCLES FOR SALE.

5 h.p. 1909 Special Twin Rex, 24in. wheels, R.O.M. back and front fast, and like new; £29.—Below.

REX, 3½h.p., late 1909, better than new, not done 400 miles; £24.—Below.

REX, 3½h.p., 1908, good condition, new Dunlop tyre, Whittle belt; £21, cheap.—Below.

BROWN, 3½h.p., Bosch magneto, Mahon free engine, spring forks, stand, carrier, etc.; £18, bargain.—Stanley Motor Garage, Westbrook St., Bolton.

HUMBER, 3½h.p., free engine, in good order; what offers?—O. W. Warriner, 57, Micklegate, York.

TRIUMPHS, 1910, for sale, old Triumphs taken in on new obes.—G. W. Warriner and Son, Micklegate, York.

HUMBER, 3h.p., splendid condition; £16.—Broadbent, 69, Woodgrove Rd., Burnley.

5 h.p. Twin Antoine, good condition; cheap; powerful; £13.—Martin, Anfield Rd., Liverpool.

F.N., 4½h.p., h.b. control, magneto, perfect order, including tyres; £21.—Briggs, Whitby.

1910 Triumph Motor, unpacked; immediate delivery; £48 15s.—Fred Lee, Pocklington.

1910 3½h.p. Humber, two speeds, as received in crate; £45.—R. Blezard, 26, Bank Hey St., Blackpool.

1903 4h.p. J.A.P.; will take lightweight in part exchange; £30.—K. Harvey, Chapeltown, Sheffield.

TRIUMPH, 1908, condition excellent; accept £28 15s., a real bargain.—Seal and Ball, Nevill St., Southport.

1909 Triumph, not done 500 miles, bought Easter, 1910, Dunlop studs; £41.—Lockwood Farmer, Rotherham.

3½h.p. White and Poppe, Amac, handle-bar control, long and low; £15, or offer.—F. Robinson, Bath St., Bolton.

PHELON and Moore, August, 1909, Kempshall, perfect condition; £40, or near offer.—Wyrill, 32, Rebecca St. Bradford.

3¾h.p. N.S.U., magneto, spring forks, studded tyres, good order; £15, offers.—Braithwaite, Parkside Meanwood, Leeds.

1909 Rex, 3½h.p., new at Easter, only used once; take £32, or nearest offer; bought tricar.—Motorist, 29, Victoria St., Goole.

5½h.p. Twin N.S.U., magneto, free engine, detachable non-skids, in splendid order; £24.—J. Earnshaw, decorator, Bingley.

DOUGLAS, Bradbury, Norton, Ariel, Lincoln Elk, P.M.C. two-stroke; sole agent for Manchester district, Gourlay, Fallowfield.

1¾h.p. Phœnix, spray, good order, trial given; nearest £5, or exchange cycle, part cash.—Stansfield, Smithwell, Heptonstall, Yorks.

3½h.p. Rex, good condition, accumulator, 26 by 2 wheels; £12 10s.; just been 600 miles tour.—Seal and Ball, Nevill St., Southport.

REX 6h.p. Twin, magneto, perfect, handle-bar control, Whittle's belt studded rear tyre; £19.—Harlow, 188, Middlewood Rd., Sheffield.

REX, 5h.p. twin, spring forks, 1907 model, in perfect order, scarcely been ridden; £20, bargain.—G. W. Warriner, 57, Micklegate, York.

5-6h.p. 4-cyl. F.N., 1909 model, with two-speed gear, fo tboards, tyres nearly new; 38 guineas cost over £64 new.—M., 5, Lawson St., Barrow-in-Furness.

5½h.p. Rex, magneto, Roc clutch, handle starting, spring forks and seat pillar, in first-class condition; £18 10s.—Atkinson, Thornthwaite Mill, Darley, Leeds.

LIVERPOOL.—Motosacoche, Moto-Reve, Wolf, the only veritable lightweights; Phelon and Moore heavy and light.—Sole official agents, British Cycle Co., 1, and 3, Berry St.

ROYAL Enfield Lightweight Motor Cycle, twin cyls., magneto, mechanical valves; 38 guineas; from stock.—District agents, Newton and Co., 50, Blackfriars St., Manchester.

NSU., 3½h.p., 1908 model, magneto, spring forks, two speeds, free engine, footboards, excellent condition, spares, lamp, etc.; £22 10s.—19, Dartmouth Rd., Chorlton-cum-Hardy.

4 h.p. Roc, 1908, magneto, clutch, free engine, handle starting, studded back tyre, in good order; £28, or reasonable offer; trial on application.—Captain Grounds Barracks, Warrington.

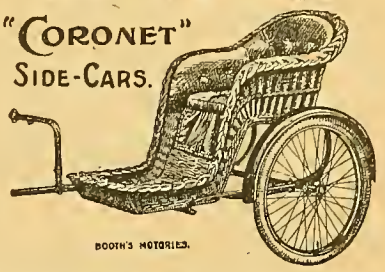
TRIUMPH, 2½h.p., handle-bar control, stand, carrier, horn, lamp, two belts, cut-out, Clincher tyres (one almost new), comfortable, perfect running order; £8.—22, Roe Lane, Southport.

P. and M., magneto, two speeds, h.b. control, just been thoroughly overhauled, cylinder bored and new piston fitted, tyres good, tubes detachable; any trial; £26.—Hattersley, Little Horton, Bradford.

CLYNO Motor Cycles, the finest touring mount for Yorkshire hills; send P.O. for list, or send address; will demonstrate sample machine.—Potter, Agent, Leicester Grove, Blackman Lane, Leeds.

1909 Motosacoche, 1¾h.p., not run 350 miles, complete, head lamp, watch, spring forks, stand, mirror, horn, numbers, tools, accumulator, spares; £28.—Box 4,678, *The Motor Cycle* Offices, Coventry.

£4 17s. 6d.



We maintain the "Coronet" is the BEST D SIGNED SIDECAR on the Market.

Free from Side-slip.—The "Coronet" Sidecar is attached in three places, the front down tube, bottom stay, and saddle bolt, and can be detached in three minutes. Every tube of attachment is telescopical and adjustable to suit any length wheelbase, any height or width. When attached the combination is as firm and rigid as a Tricar, and entirely free from side-slip, and can be driven safely without passenger if desired.

Delivery from stock to suit TRIUMPHS, REXES, P. & M.'s, N.S.U.'s.
Price £4 17s. 6d. Discount to trade.

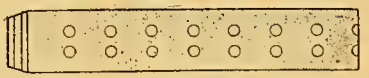
CORONET ADJUSTABLE PULLEY.

12/6

The best variable speed pulley on the market. Loose flange securely held in any position by a simple yet ingenious contrivance. Gear can be altered without the aid of spanners, lock ring easily operated by hand. Buy a "Coronet" pulley and gear your machine suitable for hill-climbing.

Standard makes, such as Rexes, Triumphs, Minervas, supplied without the necessity of sending old pulley for pattern. Discount to trade.

"GRIPSKIN" BELTING.



Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

½in., **10d.**; ⅝in., **11d.**; ¾in., **1/1**; 1in., **1/2.**
Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

Clincher Covers: 26in. or 28 × 2in., 2¼in., 2½in., **16/6.**
Dunlop Covers: 26 × 2in., **15/6**; 26 × 2¼in., **17/6**; 28 × 2¼in. or 2½in., **18/6.**
28 × 2in. Dunlop Covers: Beaded, **14/6**; Wired, **10/6.**
24 × 2¼in. Clipper-Reflex, heavy treads, **12/6**; ditto tubes. **4/-.** 26 × 2¼in. Clincher Tubes, **6/6** each.

Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from **59/6.** Your old coil and acc. taken in exchange.

CARBURETTERS.

BROWN AND BARLOW. AMAC.

Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters.
OLD CARBURETTERS BOUGHT.

MISCELLANEOUS.

Mudguards and Stays 3in., **2/11**, 4in.,	**3/6**
Silent Silencers for engines to 5 b.p.	**3/3**
Long Handle-bars, well plated	**5/6** and **6/6**
500 Fuller Midget Trembler Coils	**17/6**
200 Fuller Plain Coils (your old coil taken in exchange)	**10/6**
250 Mirror Lens Lamps, with generators	**14/9**
50 Pairs New X'lall Spring Forks, latest	**15/-**
Longuemare, Minerva, F.N. carburetters .....each	**5/6**
Amac and B. & B. carburetters	**7/6**
Good Forecarriage, complete, with tyres.....	**£2 19s.**
26 × 2¼ Clincher Tubes..... each	**6/6**
Norman Two-speed Gear, nearly new	**£2 5s.**
New Amac Carburetter, handle-bar control	**17/6**
Second-hand pair XL'All or Matchless Spring Forks	**9/6**
De Dion Two-speed Gear Box, nearly new	**£2 5s.**
Low tension Magneto suit car	**27/6**
New Pistons, 81 mm. diam.....	**3/9**

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), HALIFAX.
Telephone 1062.

MAUDES' MOTOR MART

HALIFAX AND LONDON

Earliest Possible Deliveries of any 1910 Models.

Sole Yorkshire Agents for the T.A.C. Motor Cycle de Luxe.

Sole London Agents for the NORTON.

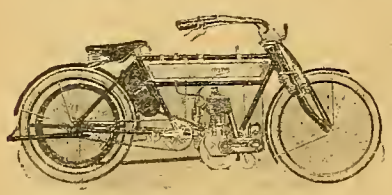
Sole Halifax Agents for TRIUMPHS, DOUGLAS, PHELON MOORE, BRADBURYS, etc., etc.

Every 1910 model we sell or offer for sale carries the makers' full guarantee regardless of whether sold for cash or exchange.

1910 P. & M.

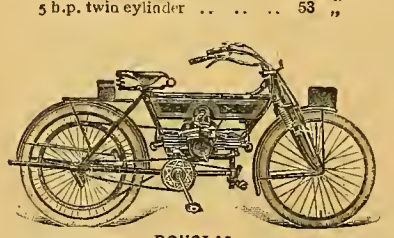
3½ h.p. £58

Delivery from stock of two models.



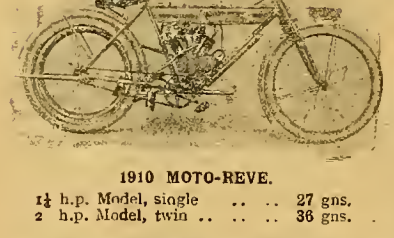
NORTON.

3½ h.p. single cylinder .. .. .. 43 gns.
4½ h.p. single cylinder .. .. .. 45 „
5 h.p. twin cylinder .. .. .. 53 „



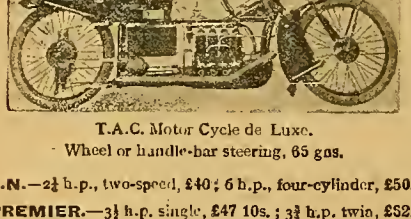
DOUGLAS.

Model B.. .. .. 36 gns.
Model C.. .. .. 38 „



1910 MOTO-REVE.

1½ h.p. Model, single .. .. 27 gns.
2 h.p. Model, twin .. .. .. 36 gns.



T.A.C. Motor Cycle de Luxe.
Wheel or handle-bar steering, 65 gns.

F.N.—2½ h.p., two-speed, £40; 6 h.p., four-cylinder, £50.

PREMIER.—3½ h.p. single, £47 10s.; 3⅝ h.p. twin, £52.

LISTS POST FREE FROM

MAUDES' MOTOR MART,
Powell Street, HALIFAX.
'Phone: 433. Telegrams: "Petrol, Halifax."

136, Great Portland Street, LONDON, W.
Phone: 552, Mayfair. Telegrams: "Abdicate, London."

MOTOR BICYCLES FOR SALE.

TWO-SPEED Twin de Luxe Rex, late 1909, perfect condition; £33 10s.—Willis, Carr Lane, Hull.

2¾h.p. Kerry, engine reground, new piston, new Continental covers, 26 by 2 beaded edge, F.N. carburetter, good leather 2in. V belt; reason for selling, bought new machine; any offer over £9.—9, Stanley St., Colne.

MOTO-REVE, lightweight, twin, as new, £20 10s.; 3½h.p. Rover, chain drive, first-class order, £11; also 4h.p. twin Clement-Garrard, ready for road, £13; also 5h.p. Durkopp, 4-cyl., spring forks, needs slight repair to crank-shaft, £12.—53, Trafford Rd., Salford.

FOR Anything you want in the way of new or second-hand motor cycles or accessories write me. Note. I advertise what I have to sell, not things I have not in stock. See my column advertisement each week. Lists free.—Hitchen, Lancashire Motor Exchange, Euston Rd., Morecambe.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

TRIUMPHS and Royal Enfields, 1910 models in stock; exchanges; satisfaction guaranteed.—Below.

HUMBER, 1909, single speed, medal winner six days' trials, like new; £30.—Below.

TWIN Minerva, 4½h.p., faultless condition, grand sidecar machine; £18.—Below.

N.S.U., 3½h.p., magneto, grand order, £16; sidecar to fit, £3.—Parker, Melbourne, Derbyshire.

1909 Triumph, thorough good order, and spares; £34.—Capt. Blockley, Hadley Park, near Wellington, Shropshire.

2h.p. Minerva, £10; 2½h.p. Bradbury, £12; twin Rex, £15; all in good order.—174, Stamford St., Stalybridge.

3¼h.p. Rex, Longuemare, new tyre, spares, overhauled, enamelled, excellent order.—Banks, Kedleston, Derby.

£15, or near offer.—3½h.p. Phœnix, chain drive two-speed gear; also Dan Albone baby carrier, good as new, 17s. 6d.—Adams, Rusper.

3½h.p. Zenith Bicar, spring frame, luxurious machine practically new condition throughout, only run 800 miles; sacrifice £15.—R. Else, Leawood, Matlock.

HUMBER, 80 by 80, chain drive, leather to metal free engine clutch, three accumulators, grand condition; £11 cash.—Atkins, Ketley Bank, Oakengates, Salop.

V.S., 5h.p., delivered November, 1909, perfect condition, not ridden 1,000 miles, well found, bought car; particulars.—Cox, Homestead, Upton, Birkenhead.

REX, 3½h.p., 1908, splendid condition, magneto, Amac carburetter, H.B. control, good tyres, guinea lamp, new Harrison's back-rest, tools, and bag; trial given; 20 guineas.—A. Warner, 239, Ruskin Rd., Crewe.

£10 or nearest offer, Ariel, 2¼h.p., surface, new belt, saddle, brake and handle-bars, just been thoroughly overhauled, and guaranteed in excellent running order.—F. E. Barlow, Chequer, Whitchurch, Salop.

5-6h.p. Twin Saroleа Midget Bicar, 1910 magneto, 1910 Amac variable, Fitall two-speed, powerful, low, flexible, easy starter, Whittle belt, take sidecar splendidly, auxiliary exhaust; £30.—Hambleton, Stockport Rd., Bredbury.

1910 Triumph, free engine, from stock; 1907 Triumph, 1910 handle-bar and carburetter, Simms magneto, £25; 2¾h.p. Ariel, magneto, h.b. control, car buretter, Rideasy saddle, £14; Millers shields for Triumph; offers.—Jones, Triumph agent, Efailnewydd, Pwllheli.

TRIUMPH, 1909, good as new, perfect running order, Cowey speedometer new Triumph lamp and generator, full set of tools, full bck of magneto spare parts, spare belt, tube, valve, etc., two extra spares bags; £40.—4,693, *The Motor Cycle* Offices, Coventry.

DOUGLAS, Enfield, Premier (twin or single).—Birmingham and District Agency. Samples on view at Depot, and at Stand 131, of the Bingley Hall Exhibition; trials arranged; present machines taken in part payment; deferred payments if desired; few second-hands.—Colmore Depot, 31, Colmore Row (opposite Cathedral Church).

TOURIST Trophy Twin 1910 Matchless, Brown and Barlow, spring forks, touring and racing handle-bars, fixed and adjustable pulleys, Triumph finish, Stanley Show model, Cowey speedometer, lamp, and spares of the best, mile a minute guaranteed; cost £80, accept £45.—Replies should be addressed to No. 4,649, *The Motor Cycle* Offices, Coventry.

DUFFIELD'S Motor Exchange.—I am giving £5 5s. sidecars away for a short time to purchasers of new motor cycles from me (or accessories to value). Second-hand motors in stock; state wants. tubular carriers, 18in by 8in., 3s. 9d.; with number plate 4s. 6d.; box spanners, sets of three 1s.; double h.b. control levers, plated complete, with cable, 4s. 6d.; single levers, 2s. 6d.—Braybrook St., West Bromwich, Staffs.

MAUDES' MOTOR MART

HALIFAX AND LONDON

All machines guaranteed in good running order before delivery.

NEW MODELS FOR IMMEDIATE DELIVERY.

New **1910 MOTO-REVE**, 2 h.p. .....
New **1909 REX**, 5 h.p., two speeds .....
New **N.S.U.**, 3 h.p. magneto .....

SECOND-HAND MACHINES ACTUALLY IN STOCK

ROC, 1909 model, 4 h.p., two speeds, latest spring forks, Bosch magneto, variable pulley, good order, and like new .....
***N.S.U.** 3½ h.p., magneto, brand new, 26 × 2¼in. tyres, low built .....
***N.S.U.** 3 h.p., magneto, brand new, only 3 left; cash
***N.S.U.** 5½ h.p., twin, magneto, low built, only 2 left
***REX** 5½ h.p., magneto, low built, good tyres to both wheels, in beautiful condition throughout .....
***BRADBURY** 3½ h.p., brand new 1910 model, standard throughout .....
***TRIUMPH** 3 h.p., magneto, grey finish, Palmer tyres to both wheels, handle-bar control, etc. .....
***TRIUMPH** 3 h.p., low built, in good condition, etc.
***KERRY** 5½ h.p., low built, 26 × 2¼in. tyres, in good condition, a splendid sidecar machine .....
***HAMILTON** 4 h.p., low built, handle-bar control, footboards, etc. .....
***ARIEL** 3½ h.p., B. and B. carburetter, good tyres, 26 × 2¼in., low built, etc. .....
***F.N.** 1¾ h.p., magneto, F.N. carburetter, handle-bar control, good tyres to both wheels, in perfect condition .....
***DURKOPP** 2½ h.p., spray carburetter, black finish, good tyres to both wheels, 26 × 2in. .....
***CLARENDON** 3 h.p., accumulator ignition, M.O.V., good tyres, green and gold finish .....
***ROVER** 2¾ h.p., Amac, handle-bar control, footrests, splendid tyres to both wheels, 26 × 2¼in., cream finish .....
MINERVA 4½ h.p., twin, 1908, low built, good tyres
F.N. 4½ h.p., four-cylinder, good tyres, spring forks ..
CLYDE 2¾ h.p., magneto, good tyres .....
SINGER 3 h.p., new tyres, magneto, good order ....
REX 1909, 3½ h.p., magneto, cantilever seat, Mabon clutch .....
ARIEL 3 h.p., M.O.V., 26in. wheels, low built, very good order .....
KERRY 5 h.p., twin-cylinder, 26in. wheels, low built
MINERVA 3½ h.p., 26in. wheels, spring forks, very low, good order .....
***REX** 5½ h.p., accumulator ignition, Cantilever spring seat, good tyres to both wheels, black finish, enamelling and plating as new .....
***BRADBURY** 2¾ h.p., three-speed pulley, in good running order and condition .....
***REX** 5½ h.p., accumulator ignition, splendid tyres to both wheels, 26 × 2¼in., footboards, aluminium finish .....
***EXCELSIOR** 3 h.p., grey finish, a good climber ..
***MINERVA** 3½ h.p., grey finish, in splendid condition, good tyres to both wheels, 26 × 2¼in. .....
FAIRY 2 h.p., low built, an ideal lightweight .....
***HUMBER** 3½ h.p., two speeds and free engine, grey finish, as new, 1909 model, all accessories .....

50/- down, and the balance 5/- per week secures the following:

***QUADRANT** 1¾ h.p., spray, good condition .....
***DURKOPP** 2¾ h.p., good tyres, in A1 condition ..
***EXCELSIOR** 2¾ h.p., long bars, spray carburetter, rubber and canvas belt, etc. .....
***BRADBURY** 2¾ h.p., three-speed pulley, in good running order .....
***MINERVA** 1¾ h.p., spray carburetter, in fair condition
BOWDEN 2 h.p., low built .....
MINERVA 2¾ h.p., good goer .....

TRICAR.

***REX** 5 h.p., two-cylinder, two speeds, low built, handle starting .....

WANTED—

any number Magneto Motor Cycles.

All machines in good running order before leaving our works, and tested by experienced men.
Machines marked * are in stock at Halifax, others at London.

MAUDES' MOTOR MART,
THE FAIR FACTORS, **Powell St., HALIFAX.**
Telephone: 433 day; 904 night.
Telegrams: "Petrol, Halifax."
Also 136, Gt. Portland St., W. (off Oxford St.)
'Phone: 552, Mayfair. Tels.: "Abdicate, London."

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

HAMPSTEAD for Bargains.—Heath Street Motor Works, 5, Heath St Tel.: 2678. P.O.

HAMPSTEAD.—3½h.p. Quadrant, magneto, handle-bar control, splendid order; £18; all accessories.

HAMPSTEAD.—2¼h.p vertical 1908 Minerva, splendid condition, with all accessories; £11.

HAMPSTEAD.—3½h.p Triumph, 1909, splendid condition, with all accessories; bargain, £35.

HAMPSTEAD.—1910 2¼h.p two-speed F.N.'s; £40; no extra for easy payments.

HAMPSTEAD.—1910 Rexes., all models in stock; no extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; exchange or gradual payments taken; no extra.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4¼h.p., late model, splendid condition, all accessories; £20, special bargain.

HAMPSTEAD.—F.N. 4½h.p., latest model, handle bar control, condition splendid, with accessories, £24.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD.—2¼h.p. 1910 F.N., almost new, with accessories; £33, special bargain.

HAMPSTEAD for Moto-Reve Model A.; in stock; no waiting; no extra for easy payments.

HAMPSTEAD.—F.N., late model, magneto, and spring forks, splendid condition, all accessories; £22.

HAMPSTEAD.—1909 3½h.p. Triumph, free engine, splendid condition; £39; all accessories.

HAMPSTEAD.—1909 3½h.p. Triumph, good condition, studded tyres; £34; all accessories.

HAMPSTEAD.—1909 model twin Moto-Reve, magneto, and spring forks; £20; all accessories.

HAMPSTEAD.—1908 3½h.p. Triumph, splendid condition; £29, with all accessories; bargain.

HAMPSTEAD.—3½h.p. Kerry, good condition, accessories, £10; 1909 Lincoln Elk, magneto, £20.

HAMPSTEAD.—For Stewart speedometers, in stock; no waiting; 55s.; and Cowey's speedometers.

HAMPSTEAD.—1909 late 3½h.p. magneto Minerva, all accessories, like new; £27.

HAMPSTEAD.—Late model V.S., 5h.p., twin, magneto, spring forks, splendid condition; £25.

HAMPSTEAD.—Humber, 2h.p., £2 10s.; Brown, 2h.p., £2 10s., requires slight repairs.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexs, Humber etc.; exchanges or gradual payments.—Rey, 5, Heath St Tel.: 2678 P.O., Hampstead.

F.N., 4¼h.p., 4-cyl., magneto, spring forks, nearly new; £26.—30a, Swaby Rd., Earlsfield.

FAIRY, 2¼h.p., twin, h.b. control, like new; sacrifice £8 15s.—17, Algarve Rd., Wandsworth.

CHATER-LEA, 3½h.p., 26in. wheels; £8 10s.; after 7.—Laycock, 52, Lausanne Rd., Hornsey.

DOUGLAS, 1910, brand new, unerated; 38 guineas "St. Albans," Brondesbury Park, N.W.

£12.—3½h.p. genuine Minerva, faultless, also sidecar; £3; any trial.—14a, Maple Rd., Surbiton.

3¼h.p. Minerva, £9; also 1¼h.p F.N. lightweight, £7 10s.—227, Underhill Rd., E. Dulwich.

4h.p. Aotoine, Chater-Lea, low, footboards, good condition; £12.—Jermy, Primley Green, Surrey.

DOUGLAS, 1910, in stock; Humber two-speed, and Triumph, no waiting.—5, Heath St., Hampstead.

BAT, 3½h.p., spring frame; £15; must sell, going abroad.—Jones, 86, New King's Rd., Fulham.

3½h.p. Kerry, good condition, cheap, or exchange 3½h.p., magneto.—12, Rathcoole Parade, Hornsey.

3½h.p. Kerry, good order, light, fast, and reliable; £12.—Lloyd, 28, Horsell Rd., Highbury, London.

V.S., 5h.p., new condition, Palmer cords, spring forks, magneto, h.b.c.; £25.—84, Greenside Rd., Croydon.

BAT, 2¾h.p., low frame, recently overhauled, perfect condition; £12.—81 New Church Rd., Camberwell.

TRIUMPH, 1909, extra condition, accessories; £37.—Fisher, 6a, High St., Hampstead.

1¾h.p. Rex, low, excellent condition; 10 guineas, or nearest.—2, Harleyford St., Kennington Oval.

3½h.p. Rex, in perfect running order; bargain, £5 5s.—H., 26, Springbank Rd., Hether Green, Lewisham, E.

REX, 1910, 3½h.p., brand new, just delivered; take £40.—Box No. 4,696. *The Motor Cycle* Offices, Coventry.

3½h.p. Curry, splendid goer, must sell; £7; low, long bars.—Pulling, 28, Lakes Rd., Keston, Kent.

MOTOSACOCHE, 1909, magneto, new condition; exchange, or sell £24.—Gardner, 6a, High St., Hampstead.

Collier's Motories,

WESTGATE, HALIFAX.

CLOSED WHIT-MONDAY & TUESDAY.

RUBBER IS UP! BUY NOW.

TYRES (Best Makes).

For a Few Weeks only. Brand New and Perfect.

	Covers.	Tubes.		Covers.	Tubes
26×2 ..	14/6	5/3	28×2 ..	14 6	5/6
26×2¼ ..	21/-	5/6	28×2¼ ..	14 6	5/6
26×2½ ..	14/6	/	28×2½ ..	14/6	5/6
24×2¼ ..	12/6	5/-			

The above are Beaded Edge.

26×2 (Wired Edge), 14/-; 28×3, 16/-; 28×2, 14/-
Rubber-studded Clinchers, Beaded, 26×2, 27/11.
20×2¼, 32/11.

LAMPS.

15/- The "COLYTE" Separate Generator (large size) Mirror Lens Lamp, divided glass. Equal to others at double money. Beautifully plated.

9/6 The "COLYTE" Seperate Generator Lamp for lightweights. A marvel of British enterprise. Plated.

Send for one on appro.

HORNS.

7/9 Largest size Three-note. Plated. Sold elsewhere at 12/6.

4/11 The famous Double-twist, Deep Note, Large Bulb, and fit for any machine.

¾in. RUBBER BELTING.

UNDER MAKERS' PRICES.

We are not allowed to advertise the make of this, but it is made by one of the largest firms in the trade.

1/6 per foot.

1in. SHAMROCK GLORIA, 13/6 per 8ft. length.
¾in. BELTING, 1/7 per foot.

1910 AMAC CARBURETTERS FOR CASH ONLY 27/-

MISCELLANEOUS.

Armstrong Typewriter, in proper order, a bargain ..	£8 10
Twin Rex, less engine ..	£6 10
New XL'All Spring Forks ..	13/-
Pair Simplex Spring Forks ..	10/6
Low Tension Magneto, good order ..	25/-
Low Tension Magneto, good order ..	21 6
Plain Coil, needs repairs ..	6/-
3½ h.p. Rex Engine, silencer and contact breaker, good condition ..	77/6
Minerva Spring Forks ..	23/6
Brooks's B100 Saddle ..	12/6
New Lycett's Saddle, large size ..	10/3
New Tool Wallets, four strap, with tool roll ..	5/11
Forecarriage with tyres and seat ..	55/-
Water-cooled Twin Rex Engine, contact breaker and silencer ..	£12 15
Six-cylinder h.t. Magneto ..	£6 10
Rex Frame, enamelled, 22in. ..	£2 0
Bosch Plugs .. post free	3/6
Belt Punches, screw down ..	1/4
"Forward" Adjustable Fasteners ..	1/6
New Midget Accumulators ..	8/9
Stanley Hook Fasteners ..	1/-
Vim Rim Brakes, new ..	7/6
Handle-bars, Rex pattern, plated, drop ends ..	6/6
Cork Grips .. post free	1/-
1908 Rex, spring forks ..	25/-
1909 Rex spring forks ..	29/-
New Plain Coils ..	10/6
New Trembler Coils ..	15/-
F.N., Longuemare, etc., Carburetters, second-hand, from	4/6

SIDECARS.

The best, three-bolt fastening, with roomy body, well sprung, enamelled and plated, 2¼in. tyre, and equal to others at 50% more money.

NOTE THE PRICE £5 17 6

Do away with that worn out body on your sidecar and get one of our Art Cane Bodies, as fitted on the above sidecars, New and Upholstered, 17/6.

Large Stock of NEW and SECOND-HAND MOTOR CYCLES.

SEND FOR LIST.

CASH WAITING for GOOD UP-TO-DATE MACHINES.
Recent make SIZAIRE 2-Seater WANTED CHEAP for Cash

MOTOR BICYCLES FOR SALE.

5h.p. Vindec, magneto, splendid condition, tyres unscratched; £20.—Harris, schoolmaster, Roydon, Essex.

TRIUMPH, 1907, magneto, excellent condition, new Dunlop tyre; £24.—Pawson, 104, Beaver Rd., Ashford.

MOTOSACOCHE, 1908, good running order and tyres, many extras; £14.—Innes, Sutton Valence, Maidstone.

4½h.p. Roc, Military Model, two-speed, starting handle, perfect S.C. machine; £29.—41, Ashford Rd., Cricklewood.

4½h.p. Twin Minerva, 1908; sell or exchange higher power; particulars, stamp.—8, Mayfield Place, Eastbourne.

4½h.p. Twin Minerva, 1908, perfect; £20, or nearest offer; particulars, stamp.—91, Melbourne Rd., Eastbourne.

4h.p. Roc, two speeds, handle starting, splendid condition; £22, near offer.—Pickett, Cornfield Rd., Eastbourne.

2½h.p. J.A.P., in excellent running order; £8 10s., or offer; appointment.—101, Camberwell New Rd., S.E.

BROWN, 3½h.p., and trailer, very powerful machine, good order, tyres nearly new; price £16.—Kingsmill, Sittinghourne.

RALEIGHETTE, 3½h.p., two speeds, clutch, water-cooled, splendid order; price £20.—43, Wimbledon Rd., Tooting.

2¾h.p. Peugeot Engine, pair 700 by 70 tyres, wheels, complete, new condition; £8.—Hopkins, 32, Thane Villas, Holloway.

FOR Sale, 1909 Triumph, in perfect condition, all accessories; £35 cash.—Trewin, Clarendon Rd., Watford, Herts.

N.S.U., 6h.p., twin, two-speed, 1908, two accumulators, and wicker sidecar; £28, bargain.—41, Ashford Rd., Cricklewood.

V.S. 6h.p Twin, magneto, h.b. control, Mills-Fulford castor wheel sidecar; £30.—8, Barrett St., Manchester Sq., W.

LINCOLN Elk, 3h.p., 1910 model, B. and B., handle-bar control, magneto, new condition; £20.—A.F.N., The Elms, Hendon.

1¾h.p. Minerva, tyres as new, thoroughly overhauled, splendid condition; £5 18s.—3, Strode Rd., Bruce Grove, Tottenham.

MINERVA, 2h.p., Longuemare, just overhauled, good hill-climber, fast, splendid order; £7.—Grace, 28, Douglas Rd., Surbiton.

3½h.p. Lagonda, perfect condition; £8 10s., or near offer; no accommodation.—Barden, 38, Ambler Rd., Finsbury Park.

TRIUMPH, 2¾h.p. J.A.P., in fine condition, spare cylinder, piston, etc.; rare bargain, £10 10s.—61, Denmark Hill, S.E.

RALEIGH, 3h.p., Peter-Unions, two accumulators, splendid condition, spares; £16.—Middleton, Restaurant, Uxbridge.

KERRY Motor Cycle, 2¾h.p., Palmer tyres, practically new, fine condition; £12.—Luffingham, 22, Wastdale Rd., Forest Hill.

3½h.p. Quadrant, perfect condition, Palmer cords, spring forks, accessories; £18 18s.—Ross, 100, Tower Bridge Rd., S.E.

TRIUMPH (magneto), excellent condition, good accessories; £21 cash; bought car.—Darby, c/o Joslins, Market Place, Chelmsford.

PHELON and Moore, 3½h.p., two-speed, 1908, new condition; £37.—169, Castellain Mansions, Maida Vale. 'Phone, 3678 Pad.

1910 Rex, latest, 3½h.p., just delivered; owner unable to take delivery; accept £43.—Taylor, 21a, Store St., Tottenham Court Rd., W.C.

MOTOR Cycles by extended payment without extra charge.—Write particulars, Taylors, 21a, Store St., Tottenham Court Rd., W.C.

GUARANTEED Clement Lightweight, 2¼h.p., as new, 26 Clincher, Riches tubes, very low; approval; £7.—H. Dew, Eynsford, Kent.

2¼h.p. Zedel, Chater, low, Brown and Barlow, Palmer cords, rebushed; £11; exchange sidecar machine.—10, Gosberton Rd., Balham.

TROW 1909 Motor Cycle, 4¼h.p., very powerful, take sidecar any hills; trials given any time; cost £25.—Trow, Balaam St., Plaistow.

2¾h.p Brown, Telephose dry cell ignition and spare accumulator, first-class order; £10.—Thompson, 69, York Rd., New Southgate.

N.S.U., 3h.p., extremely reliable, new tyre, good climber, low, lamp, horn, all accessories; £11 10s.—Call, 54, Mercers Rd., Holloway.

1908 N.S.U., 3½h.p., 26 by 2¼ Peter Union tyres, 1in. belt, accumulators, lamp, tools, little used; £16 10s.—89, Avenue Rd., Acton.

TRIUMPH, 1909, with Roe two-speed, perfect order, spare tube, exhaust valve, valve extractor, etc.; £43.—L. D. P. Swift, Eastbourne.

4½h.p. Twin Minerva, M.O.V., spring forks, powerful sidecar machine, ready for road; cheap.—On sale, Wauchope's, 9, Shoe Lane, London.

MOTOR BICYCLES FOR SALE.

THE Eastern Garage Company respectfully solicit enquiries for second-hand machines, of which they have a large stock at prices ranging from £7.—Below.

1909 Triumphs (several), complete with accessories; and guaranteed perfect in all details; £34.—Bel w.

1908 Triumph, standard machine, in better condition than most 1909's, lamp, horn, tools; £28.—Below.

1909 5h.p. Rex de Luxe, nearly new; previous owner exchanged for T T model; £48.—Below.

1910 3½h.p. Tourist Rex, used for few trials only, particularly fine machine; £37.—Below.

1909 Rexes, several 3½h.p. Tourist models, all in guaranteed condition; from £26.—Below.

1909 Minervas; two 3½h.p. and one 4½h.p., carefully overhauled; £24 and £30.—Below.

THE Eastern Garage Company have the above machines in stock at 418 Romford Rd., Forest Gate, E. Tel.: Stratford 10. T.A.: Egarage, London.

BAT, 8h.p., nearly new, twin-cylinder, spring frame, speedometer, headlight, tools and spares; £40, no offers.—127, East Hill, Wandsworth.

CHATER-LEA, 4½h.p. M.M.C., Fitall two-speed, completely overhauled, enamelled and plated; £20.—4,686, *The Motor Cycle* Offices, Coventry.

TWO speeds, free engine, 4h.p. Auto, Chater, Longuemare, 26in. wheels, good condition; £13.—J. Norris, Little Pagehurst, Staplehurst.

MINERVA 2h.p. Lightweight good running order, h.b. control; cash wanted; £7.—Motor, 31, Woodside Gardens, Bruce Grove, Tottenham.

3½h.p. Rex, good condition, 1909 fittings, Brown and Barlow, h.b. control accumulator ignition; £12 10s.—Wright, 138, High St., Lewisham.

EAGLES.—N.S.U., 4h.p., twin, Bosch magneto, spring forks, 1in. belt, two-speed gear and free engine, with Millford sidecar; any trial; £34 10s.

EAGLES.—N.S.U., 3½h.p., magneto, 1in. belt, adjustable pulley, 26 by 2¼ Continental tyres; £18.

EAGLES.—Rex, 2h.p., vertical engine, spray carburetter, Dunlop tyres, long handle-bar, low saddle; £7 15s.

EAGLES.—5h.p. Peugeot Twin, 1908, Bosch magneto, girder forks, N.S.U. two-speed gear and free engine, and Millford sidecar; any trial; £30.

EAGLES.—2¼h.p. N.S.U. twin, 1909, M.O. valves, Bosch magneto, under-geared pulley, perfect condition; £28 10s.

EAGLES.—N.S.U., 3h.p., accumulator ignition, low built, excellent condition; £13 10s.

EAGLES.—Motosacoche, 1908, excellent condition, all accessories; £15.

EAGLES.—N.S.U., 3½h.p., 1908, magneto, N.S.U. spring forks, 1in. belt, Shamrock-Excelsior non-skid tyre, perfect condition; £21 10s.

EAGLES.—Any of the above can be had on approval, deposit.

EAGLES.—We have a few brand new N.S.U.'s, just delivered, finished in latest style; 3h.p., £25; 3½h.p., £31; 5h.p. twins, £40; two-speed gears, £5 15s extra; exchanges entertained; deferred payments; inspection invited.

EAGLES and Co., High St., Acton.—N.S.U. West London District Agency 1910 models from stock; liberal allowances for machines in part payment. Tel.: 556 Chiswick.

2h.p. Minerva, spray carburetter, good tyres, stand, and carrier, going order; £6, or offer.—23, Mellison Rd., Tooting.

2½h.p. Minerva, splendid condition; £6 15s.; will take 2-2 push bike in part payment.—355, Lillie Rd., Fulham Cross, London.

2h.p. Werner, low, light, good order; seen any time; bring cash and ride it away; £6 10s.—76, Summerhill Rd., Tottenham.

REX, 3½h.p., Longuemare, Wetnwatu, long bars, tyres as new, perfect running order; trial; £10.—76, Kenyon St., Fulham.

1910 Twin Rex de Luxe, two speeds, Palmer cord; exchange, or fair offer.—48, Londesborough Rd., Stoke Newington, N.

RILEY, 6h.p., water-cooled three speeds, reverse, good condition climb anything, trial, appointment; £40.—Maber, Police Station, Kingsford.

F.N., 2¼h.p., spring forks, smart, reliable good appearance, order, £9, All-weather suit, 15s.—Rowans, Conway Rd., Palmer's Green, N.

3½h.p. Minerva, Phœnix spring forks, low takes sidecar; £12 12s.; seen; trial.—168, Wandsworth Rd., London (five minutes from Vauxhall).

MATCHLESS, 6h.p., twin J.A.P., Palmer tyres, spring frame, spring forks, splendid running order and condition; £24.—4, Francis St., Woolwich.

3½h.p. Fleet, Brown-Barlow, 26in. Dunlops, Dermatine, fast and reliable; £8 10s.; cash offers; letters.—50, Priory Park Rd., Kilburn.

5h.p. Twin Sarolea, 2¼in. Palmer cords, footrests, carrier, stand, excellent condition; only £20; spares worth £5.—Feasey, Buntingford, Herts.

TRIUMPH, 1906-7, h.b. control, spring forks, horn, Palmer cord tyres, perfect condition; bargain, £18.—Motor, 400, Stanstead Rd., Catford, S.E.

CAMEL

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3 *Grand Prix.* 8 *Gold Medals.*

As a chain is only as strong as its weakest link, a belt is only as efficient as its least considered essential.

The essential links in motor belting construction—Maximum effective pulling surface; Elimination of stretch; Tensile strength; Flexibility; Centring of core; Prevention of twisting, ends breaking, and surface cracking—when evenly considered and supported by suitable materials and experience, ensure a perfect whole.

Camel Belting, owing to its uniform wear, due to scientific construction, is offered and sold as being the nearest possible to the ideal.

Obtainable through all Agents.

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3/6 *Nett.* 5d. *Post.*

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BELTS

MOTOR BICYCLES FOR SALE.

LATEST Chater-Lea No. 7 frame, complete with spring forks, handle-bars, mudguards, etc., all new; £4 18s.—12, Muirkirk Rd., Catford.

4-CYL. F.N., spring forks, studded tyre back, butted tubes, footrests, magneto, carrier-stand, good condition; £17.—13, Longley Rd., Tooting, S.W.

FOR Sale, 4h.p., J.A.P.-Chater-Lea, Bosch, Palmer cord, Clincher studded, built to order last month, used once; £26 10s.—84, Rodenhurst Rd., Clapham.

BRADBURY, 3½h.p., in good condition; trial arranged, good tyres, easy starting, good hill-climber; £10 cash.—Bockham, 13, Worthington St., Dover.

F.N. Lightweight, 1909 catalogue model, like new, magneto, spring forks; only wants seeing; accept reasonable spot cash offer.—J. White, Warren, Guildford.

2¾h.p. Kerry, splendid condition, fast, low, long handle-bars, footboards; no reasonable offer refused.—G. R. Davcis, 9, Park Rd., Enfield Lock.

LIGHTWEIGHT 1¾h.p., low, stylish, photo, £12; also 3½h.p., in perfect condition, £13 10s., photo.—Apply, Rayner Canham, 40, Sheen Lane, Mortlake, S.W.

BARGAIN.—3½h.p. Fafnir, Chater-Lea fittings, spray carburetter, condition as new; £15, or near offer.—Apply, F. Matthias, 76, Battersea Rise, London, S.W.

TRIUMPH, July, 1908, 3½h.p., Palmer cord tyres, splendid condition, trailer, good condition, new tyres; £33, no offers.—Shoesmith, Cobham, Surrey.

3½h.p. N.S.U., low frame, new non-skid tyre on 3-2 back, new belt, brass tank, stand, luggage carrier, gas headlight; £15.—Seen, 93a, Askew Rd., W.

MOTOR Cycle, 3½h.p., spring forks, h.b. control, and every requisite for same all up-to-date; £15; buying car.—Hall, grocer, Queen's Terrace, St. John's Wood.

3½h.p. Fafnir, Druid spring forks, adjustable pulley, Ruthardt magneto, footboards, tyres like new, rubber belt, grand condition; £18.—785, High Rd., Leytonstone.

7-9h.p. Peugeot, Chater-Lea special frame, Simms magneto all spares and tools, condition as new, fast, low machine; owner bought car.—C., 36, Willesden Lane, London.

QUADRANT, 3½h.p., perfect, new tyres, car lamp, speedometer, complete; worth £20, sell for half; all spares obtainable.—Architect, c/o Thomas, 92, High St., Barnet.

3½h.p. Quadrant, magneto ignition, special Chater-Lea spring forks, practically new in condition; quick sale, £20.—Tebboth, 10, Devonshire Rd., Mottingham, Kent.

FOR Sale, motor cycle, 3½h.p. Centaur throughout, nearly new tyres, in good running order; 12 guineas, or near offer.—H. Perr, 8, Worple Rd., Wimbledon.

5h.p. Twin Kerry, good condition, tyres nearly new, accumulator, cylinders re-bored, new pistons last month; £16; full particulars on application.—Egerton, Gomshall, Surrey.

3½h.p. Twin Norton, Bosch magneto, Druid forks, studded tyres, nearly new, Shamrock belt, stand, tools, two lamps; £21.—F. Beeston, Kent Arms, Gillingham, Kent.

4h.p. Antoine, magneto ignition, h.b. control, in perfect condition, been thoroughly overhauled; a genuine bargain, £12 10s., or near offer.—23, Aberdeen Rd., Highbury.

2¾h.p. Lurquin-Coudert, low, light, in excellent condition and running order, 26in. by 2¼in tyres; Dunlop front, studded back, both as new; £8.—50, Castleton Rd., Goodmayes.

TRIUMPH, 1907, in perfect condition, just been overhauled by makers, costing over £8, including new lamp, horn, belt, etc., tyres perfect; £28.—B., 27, Campion Rd., Putney, S.W.

5h.p. Twin Peugeot, spring frame, accumulator ignition, specially tuned, B B. carburetter, petrol consumption very low; £25.—H. Marshall, 143, Cornwall Rd., Notting Hill, W.

TRIUMPH, 1908; price £28, but will accept first offer over £25; good tyres, spares and tools, and trial hill one hundred yards away.—The Hills, Nurzefield Rd., Reigate.

TRIUMPH, 3h.p., B. and B., handle control, tyres perfect, head lamp, all accessories, perfect condition throughout; immediate disposal; £15 cash.—Burton, 150, High St., High Barnet.

3½h.p. Humber, 1909, nearly new, Roc clutch, two-speed free engine, etc., £35; 3½h.p. Rex, splendid order, £10; 3h.p. Rex, £5, in going order.—Lucas and Co., High Rd., Chiswick.

3½h.p. Fafnir, Chater-Lea, B. and B. carburetter, h.b. control, footrests, R.O.M. back, Palmer cord front, Whittle belt, splendid order, £18.—210, Hoe St., Walthamstow.

LIGHTWEIGHT, 1¾h.p. Minerva, brass torpedo tank, Amac, h.b. control, new coil accumulator, stand-carrier, gas lamp, hooter; £5 10s.—Motor, 24, St. Asaph Rd., Brockley, S.E.

3½h.p. Minereva, magneto, No. 6 frame, Whittle belt, latest B. and B. carburetter, tyres as new, good order; £16 10s., offers.—Caretaker, Buildings, Warwick Rd., Sutton.

F.N., 4-cyl., 4½h.p., with Manning tricycle attachment, magneto, Palmer cords, lamp, horn, tools, spares; cost £62, take £25; offers, or exchange.—A. Fort, 53, Hallam St., Portland Place.

SIDECARS AND FORECARS.

SIDECAR, rigid, left. Chater-Lea throughout, Palmer cord tyre, wicker, upholstered green, apron band brake, double compartment box, nearly new, perfect; £5 10s.—Edward, Wotherse Schools, Croydon.

PILOT Sidecars, smartest and best, unrivalled for design, materials workmanship, and finish, exquisite body, smartly upholstered; approval; gradual payments; £3 17s. 6d.; less tyre.—Pilot Cycle Co., Soho Rd., Birmingham.

FORECAR Attachment, art cane, extended side stays to back wheel, two powerful compensating brakes, 26 by 2¼ tyres, new, mudguards, etc., in splendid condition, fit any motor cycle; £4 10s., absolute lowest.—Knight, Maypole House, Bexley, S.E.

SIDECARS.—Our £5 10s. are built from Chater-Lea fittings, including hub; our £4 15s. car is built from Chater-Lea lugs; all are complete with side strain stay, and mudguard included; second-hands from £3 15s., fitted while you wait free.—C. A. Edgar, 123, Holloway Rd., London, N.

THE Crowsley Spring Wheel makes an ideal sidecar; no vibration easy steering, faster; level of sidecar can be adjusted to your own liking; any maker of sidecar can supply it; insist on having it on your 1910 sidecar; parts can be obtained from Messrs. Chater-Lea, or from E. A. Crowsley, 167, Victoria St., S.W.

WE Must Apologise to our customers for the delay in supplying our sidecars, and must thank them for waiting so patiently. However, we have put extra hands on for the Whitsun rush, and can supply everybody now from stock. Price still the same, £5, and genuine Chater-Lea fittings throughout; trade supplied.—Oakleigh Sidecars, Ltd., 65a, Rosendale Rd., West Dulwich

FOLDING Sidecars, will go through any doorway where motor cycle will go without detaching, absolutely rigid, more comfortable and convenient than any existing sidecar, price £8 8s.; your old sidecar converted into folding for £1 17s. 6d.; ordinary detachable sidecar, £4 15s.; trade supplied.—Sole Manufacturers, the New Mona Cycle and Motor Co., Mona Works, Barrett's Grove, Stoke Newington, London, N.; Garage at rear 166 and 168, High St., Stoke Newington, N. (see under repairers.)

SIDECAR COMBINATIONS.

5 h.p. Chater-Lea Cycle and sidecar, spares, finest on road; £25.—8, Packington St., Islington, London.

3½ h.p. Kerry and sidecar, powerful, Whittle belt, splendid condition; bargain, £15.—332, Mare St., Hackney.

3 h.p. Kelecom, Chater-Lea, Palmers, Bowdens, and Chater sidecar; 19 guineas.—Jackson, 138, Brixton Rd., London.

AURIN-KLEMENT, magneto, 3½h.p., and sidecar perfect; any trial; £16.—Write, or call, Kingsleigh Whitton Rd., Hounslow.

5 h.p. Twin Kerry, three speed, and Montgomery sidecar, excellent condition; trial; £20.—L. Barber, Hailsham Rd., Polegate, Sussex.

3½ h.p. Brown, handle-bar control, accumulator ignition, and Millford easter sidecar, new September last; £34.—14, Fernor Rd. Forest Hill, S.E.

N.S.U., 1908, 3½h.p., magneto, and Mills-Fulford sidecar, little ridden, excellent condition; sacrifice £25 Particulars, Shermans, Homestead, Sutton.

DHELON and Moore, 3½h.p., H.B. control, two speeds, excellent condition; £32; with sidecar stor wheel, £37; spares.—11, Strawberry Dale, Harrogate.

ROC, 4h.p., Military Model, and sidecar, free engine magneto, adjustable pulley, £25; without sidecar 22; splendid condition; seen any time.—177, Roman d., Bow.

3½h.p. M.M.C. and sidecar, Chater frame, no pedals spring footboards, fast, powerful, good condition, built; £16 10s., complete.—Smith, 46, Lorrimore Walworth, S.E

4h.p. Two-speed Vindec, with special Mills-Fulford side car, most perfect condition, spring footboards, coals; cost over £80, will take £45, or near offer.—Franklin, Craigmillar, S Croydon.

h.p. Twin Werner, splendid condition, rubber studded 26 by 2¼ Clinchers, ¾ belt, Brown accumulator ring forks, fast, powerful all accessories; £15; with decar £18; trial.—17, Bedford Sq., Stepney.

3AT Spring frame and sidecar, 4h.p. Stevens engine, free engine clutch, nearly new studded tyres, 3 10s.; also 3½h.p. Bat, M.M.C. engine, magneto, 8.—Ayden Bros., 17, Blackstock Rd., Finsbury Park,

3AT, 8h.p., two-speed, P.M., free engine, R.O.M. tyres (spares), valves, etc., 1910 model, not en ridden five hundred miles, with sidecar second-nd; £55 the lot.—G. W. Warriner, 57, Micklegate, ork.

1909 5h.p. Twin, Chater-Lea, magneto, Mabon clutch h.b. control, lamps, many spares, and rigid Montmery sidecar, with child's seat behind, all in excellent ndition; trial; £37 10s., cost £67; owner bought car.—, Buston Terrace, Jesmond, Newcastle-on-Tyne.

7-8., 7-9h.p., 1910 two-speed cycle, with rigid V.S. sidecar, not run 1,000 miles, with new Palmer cord re on rear wheel two lamps, horn, spares, unused tubes, etc.; £60.—Wolstencroft and Stevens, 19, Brick , Piccadilly, London.

NEW "MIDGET" LAMP

For emergency or inspection.
To be carried in buttonhole.
Price 6/- each.

The "ALL-METAL" SWITCH

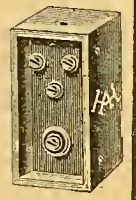
One-way, 2/3 each Two-way, 2/9.

THE "EBONITE" SWITCH

One-way - - - 3/- each
One-way with plug 3/6 „
Two-way - - - 4/- „

THE HAH COILS

THE MOST ECONOMICAL.



Plain Coil, 13/6 each. Trembler Coil, 17/6 each.

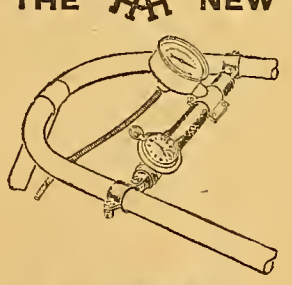
HAH HELLESEN

DRY BATTERIES.

MOTOR CYCLE SIZES.

Price 6/6 and 7/- each.

THE HAH NEW



"CROSSBAR"

New size for "Triumph" machines ready.

Any Size. 7/6 each complete.

THE HAH NEW

ROUTE CARD OR MAP HOLDER

WILL BE OUT THIS WEEK.

Giving complete protection to route card or map.

Write for particulars.

A. H. HUNT,

115-117,

CANNON STREET,

LONDON, E.C.

SIDECAR COMBINATIONS.

5-6h.p. Twin Antoine and sidecar, spring forks, B. and B. carburetter, variable pulley, everything in first-class condition, just been overhauled, £24, or would sell separate.—242, Croxted Rd., Herne Hill, S.E.

1910 Peugeot, 5h.p., twin, magneto, real cane sidecar, unfinished, less tyres and accessories; cost £60, accept £40; reason going abroad.—Motorist, 7, Park Parade, Harlesden, N.W.

PHELON and Moore, 1910, as new, Autoclipse lamp, generator, horn, spare valve, spare back wheel complete, sidecar, and solo gears, non-stop quarterly trial; cost £60, £52.—W. A. Lockwood, 37, New St., Huddersfield.

MOTOR TRICYCLES AND RUNABOUTS.

RUNABOUT (Eagle), 6½h.p. De Dion, two speeds, tyres, chains, etc., in grand condition; appointment.—Eagle, Kirkella, Harpenden.

3h.p. Runabout, low built, spring front bucket seat, on springs, Amac carburetter, trembler, clutch, 12 gears, 1½in. belt drive; £18.—317 Regent Rd., Salford.

2¼h.p. Motor Tricycle, De Dion engine, new tyres, in excellent running order, suit middle aged person; price £15 15s.—Cuthbert Bradley, Folkingham, Lincolnshire.

TRAILERS.

TRAILER, splendid condition, Palmer tyres, Chater-Lea fittings; offers.—Baldwin Manufacturing Co., Nottingham.

COVENTRY Eagle Coach-built Motor Trailer, box seat, excellent condition; £2.—4,687, *The Motor Cycle* Offices, Coventry.

QUADCARS.

QUADCAR, twin-cyl., magneto ignition, in splendid condition throughout, two speeds forward and reverse; £30, or near offer.—Wait and Co., Leicester.

QUADCAR, Phœnix, 8h.p. twin Fafnir, water-cooled engine, coach-built, two speeds and reverse, lamps, J.A.P. carburetter and every refinement; £40.—128, High Rd., Tottenham.

QUADCAR, 3h.p. De Dion air-cooled engine, two speeds and free, new gears, in perfect order; £10, or exchange for motor cycle, cash adjustment either way.—Fisher, Dublin House, Harrow.

CARS FOR SALE.

ECLIPSE.—20-32h.p. Darracq, side entrance, magneto, hood, screen, speedometer, perfect; £155.

ECLIPSE.—25h.p. Argyll, 4-cyl., semi-limousine, two ignitions; a real bargain, £155.

ECLIPSE.—18h.p. Siddeley side entrance, hood, screen, dual ignition; a gift, £115.

ECLIPSE.—16h.p. Chenard-Walcker, side entrance, two ignitions, hood, splendid condition; £115.

ECLIPSE.—25h.p. Clement, side entrance, two ignitions, hood; £115.

ECLIPSE.—18h.p. Darracq, 1908, long chassis, side entrance, magneto; £130.

ECLIPSE.—6h.p. Swift, 2-seater, hood, in splendid order; bargain, £32 10s.—43, Wimbledon Rd., Tooting.

ECLIPSE.—14h.p. Star, 4-cyl., M.O.V., side entrance, excellent order; £75.

ECLIPSE.—14h.p. Forman, 4-cyl., M.O.V., side entrance, new condition; bargain, £95.

ECLIPSE.—14h.p. Mutel, 4-cyl., steel frame, hood, excellent order; £72 10s.

ECLIPSE.—12h.p. J.P., 2-cyl., long chassis, side entrance, hood, perfect order; £80.

ECLIPSE.—16h.p. Panhard chassis, steel frame, Krebs, very good order; £55.

ECLIPSE.—6h.p. Siddeley, 2-seater, steel frame, reliable and good; £38.

ECLIPSE.—6½h.p. Gladiator, four seats, three speeds, extremely reliable; £31.

ECLIPSE.—10-12h.p. Star box delivery van, very good order; £50.

ECLIPSE.—3½h.p. Benz, two speeds, good order; exchange; £6 10s.

ECLIPSE Engineering and Motor Co., 255, Earlsfield Rd., Wandsworth. 'Phone, 1135 Putney Station, Earlsfield, L.S.W.R., 15 minutes from Waterloo.

10-12h.p. Darracq Car, 2 cyle., nearly new tyres, hood, accessories; £65; part exchange.—20, Potternewton Lane, Leeds.

6h.p. Peugeot, smart 2-seater, three speeds, reverse; £38.—20, Potternewton Lane, Leeds.

8-10h.p. Coventry Progress, 2-cyl., 4-seater, live axle, smart appearance, splendid tyres, excellent condition, lamps, and horn; £38.—Below.

12-14h.p. Beeston Humber, 4-cyl., four speeds and reverse, most comfortable and fast car; any examination and trial; great bargain at £68.—Crescent Motors, Park Crescent, Clapham, S.W.

DAIMLER, 14h.p., 4 cycle., four speeds and reverse, gate change, 5-seated body, five lamps; sacrifice to clear £50.—Motorist, 12, Kew Bridge Rd., Brentford

CARS FOR SALE.

PALMER.—30-40h.p. James and Browne, double landaulet, 6-cyl., superb carriage; £275.

PALMER.—30-40h.p. Tony-Huber, side entrance, 4-cyl., dual ignition, steel frame; £150.

PALMER.—15-20h.p. C.G.V., limousine, 4-cyl., dual ignition, silent, magnificent car; £225.

PALMER.—15-20h.p. Darracq, tonneau, 4-cyl., wants repainting, good running order; £55.

PALMER.—16-18h.p. Darracq, side entrance, very late model, magneto ignition; £125.

PALMER.—16-20h.p. Whitlock, Aster, 4-cyl., detachable limousine, side entrance; bargain, £100.

PALMER.—10-12h.p. Darracq, side entrance, 2-cyl., hood, screen, speedometer; cheap, £85.

PALMER.—24-30h.p. De Dietrich, side entrance, 4-cyl., magneto, hood, screen; £100.

PALMER.—16-20h.p. De Dietrich, tonneau, seat eight, 4-cyl., magneto ignition; £75.

PALMER.—16-24h.p. De Dietrich lorry, 4-cyl., long steel frame, solids; £100.

PALMER.—16-20h.p. Beeston Humber, side entrance, dual ignition, beautiful car; £125.

PALMER, 9-11h.p. Taxicab, landaulet, seating four inside, condition like new; £115.

PALMER.—9-11h.p. Buchet, latest pattern 2-seater, single-cyl., splendid value; £85.

PALMER.—9h.p. Jackson, 2-seater, 2-cyl., Gnome motor, special clearance; price £50.

PALMER.—8-11h.p. Panhard waggonette, 3-cyl., Centaur, Krebs, solid tyres; £45.

PALMER.—12-16h.p. Corre chassis, 4-cyl., M.O.V., cardan, good running order; £55.

PALMER.—16h.p. J.A.P. engine aeroplane, 2-cyl., dual ignition, Weiss propeller; £90; three aeroplanes in stock.

PALMER.—4½h.p. Benz 4-seater, electric ignition, wood wheels, solid tyres; £6.

PALMER.—All above seen at L. N. Palmer's, 9a, Trevelyan Rd., Tooting. 'Phone, 208, Streatham. Photos, details per return; easy terms; exchanges.

10-12h.p. Brown, 2-cyl., three and reverse, 2-seater racing type; £55.—Below.

8h.p. De Dion, 4-seater, two speeds and reverse; £47 10s.—Below.

7-9h.p. Ster, 4-seater, three speeds and reverse; £45.—Below.

10-12h.p. Dennis, magneto, three speeds and reverse, 2-seater, racy type; £55.—Below.

10-12h.p. 2-cyl. M.M.C., 4-seater, hood, fine touring car; £47 10s.—Below.

10h.p. Pick, 2-cyl., 2-seater, three speeds and reverse, low built and racy; £65; photos; no full particulars; exchanges.—128, High Rd., Tottenham. 'Phone, 1982.

5½h.p. O.T.A.V. Voiturette, new Dunlops, magneto, hood.—Home, Electricity Works, York.

5½h.p. Humber Car, 2-senter, in thoroughly good condition throughout; £30, or offer.—Fitze, Witney, Oxon.

6-8h.p. Darracq, 2-seater, three speeds, good tyres, fine running order; sacrifice, £27 10s.—61, Denmark Hill, S.E.

SWIFT, 6h.p., 2-seater, in perfect running order, all new tyres; £25, or nearest offer.—G. W. Wairiner, 57, Micklegate, York.

8h.p. Darracq Car, 2-seated, glass screen, hood, headlight, all spares, in perfect running order; £45, or offer—3a Bridge St. Cambridge.

£35.—Argyll car, 8h.p., 4-seater, good running order, part exchange motor cycle or furniture.—216, Wandsworth Bridge Rd., Fulham.

9-11h.p. Clement-Talbot, 2 or 4-seater, 2 cyls., three speeds live axle, perfect, complete, lamps, etc.; £45; trial.—Write, H.P., 32, Rylett Rd., W.

DARRACQ, 8h.p., 4-seater, detachable tonneau, in beautiful condition, any trial; £65, accept magneto motor cycle part.—127, East Hill, Wandsworth.

WOLSELEY Car, 12h.p., detachable limousine, tyres nearly new; would make fine hire car; any trial and inspection; sacrifice £50.—Owen Cottage, Melbourne Lodge, Queen's Walk, Ealing.

6½h.p. Darracq, 4-seater, three speeds and reverse, splendid condition, climb anything; £29.—Below.

8-10h.p. Aster, 2-cyl., 4-seater, hood and lamps, most useful and reliable car; any examination, recently re-painted; £32 10s.—Below.

15h.p. Star, 4-cyl., 4 or 5-seater, four speeds and reverse, Stepney wheel, tyre, and lamps, absolutely perfect; any trial; £58.—Sully, 10, Old Town, Clapham, S.W.

8-10h.p. Decauville, 4-seater, 2-cyl. car, live axle, Sampson non-skids, £20, no offers.—Brown, Imperial Wharf, Townmead Rd., Fulham.

TONY-HUBER, 10-12h.p., 4-seater, Stepney, hood, tyres as new, excellent condition throughout; £55; take bike part.—4, Frances St., Woolwich.

4-CYL. Fafair Car, good running order; any trial; £75, good make motor cycle taken in part exchange.—G. Wailes and Co., engineers, 386 Euston Rd.

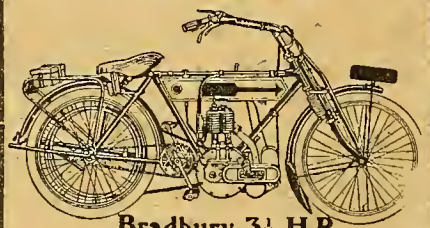
THE BRADBURY

3½ h.p.

The CHAMPION HILL-CLIMBER.

BEST BRITISH-BUILT MOTOR.

Price £46



Bradbury 3½ H.P.

Awarded Highest Honours in Reliability Trials. More than 200 First Prizes.

SEASON 1909.

London to Edinburgh.
A.C.U. Quarterly Trials.
London to Land's End and back.
A.C.U. Six Days' Reliability Trials.
Manchester Motor Clubs' Dinas Mawddy Hill-climb.
1st and 2nd in Isle of Man Open Hill-climbing Competition at Crogga Hill and Snaefell.

1910 EVENTS.

MARCH 12TH.—**Herts County Reliability Trial.** First-class Certificate. Highest Award, Mr. W. Cooper, 3½ h.p. Bradbury. Non-stop Run, 60 miles of extremely greasy roads.

MARCH 25TH.—**Wansbeck Motor Club Hill-climb.** 1st, Mr. T. W. Hall, 3½ h.p. Bradbury.

MARCH 26TH.—**London to Land's End and back,** an exceptionally hilly course. Three Bradburys entered and ran through successfully to the finish, two being awarded Gold Medals, Mr. Hugh Gibson and Mr George Wray.

MARCH 26TH.—**Newcastle Motor Club Speed Competition.** 1st, Mr. R. Rowntree, 3½ h.p. Bradbury. Three Bradburys in first five from seventeen competitors.

MARCH 27TH.—**Herts County and Harrogate M.C. Inter-club Hill-climb,** Sutton Bank. Fastest time of Southern Team by Mr. W. Cooper, 3½ h.p. Bradbury.

MARCH 29TH.—**North-Eastern Automobile Association Hill-climbing Competition.** 1st, Mr. R. Rowntree, 3½ h.p. Bradbury, and fastest time.

APRIL 7TH.—**Walthamstow Motor Club, First Trial, "Low" Cup.** Full Marks (100) gained by Mr. A. T. Stanton, 3½ h.p. Bradbury.

APRIL 16TH.—**Streatham and District Motor C.C. Hill-climb.** 1st and fastest time, Mr. W. Cooper, 3½ h.p. Bradbury.

APRIL 20TH.—**A.C.U. Quarterly Trials.** Non-stop Run by Mr. W. Cooper, 3½ h.p. Bradbury.

APRIL 23RD.—**Herts County A.C. Hill-climb.** Class II. 1st, Mr. W. Cooper, 3½ h.p. Bradbury.

APRIL 23RD.—**Walthamstow Motor Club Hill-climb.** Single-cylinder Class. Fastest time made by Mr. A. T. Stanton, 3½ h.p. Bradbury. Awarded Gold Medal.

The above are selected from many other successes.

For Speed, Hill-climbing, and Comfort in riding, the Bradbury has no equal.

BRADBURY & Co. Ltd.,
Wellington Works,
OLDHAM.

Catalogue & Name of Nearest Agent on Application.

CARS FOR SALE.

10h.p. Modern Oldsmobile, Cadillac type, 2 or seater, 760 by 90 Dunlops, screen, fast, quie £68, part tricar or bike.—61, Denmark Hill, Camberwe

ADAMS, 10h.p., 2-seater, two ignitions, foldi screen, new condition; sell £65, take good mot bike part payment.—Boscombe, Cholmeley Park, Hig gate, N.

O. T.A.V. 2-seater, in thorough order, including ext tyre, hood, and tools; only £35 to clear. Apply, Salway Motor Wks., Salway Hill, Woodfo Green.

5½h.p. Humberette, perfect condition throughout, t speeds and reverse; will sell cheap, or take part exchange modern motor cycle.—Garner, George Yar Barnsley.

16-20h.p. National, like new, hood, screen, two igr tions, Claudel-Hobson carburetter, for sale or e change 2-seater and cash.—McFayden, Blackhall S Paisley.

SIZAIRE, 9h.p., 120 by 110, Stepney, speedomete lamps, and spares, a smart 2-seater in capital orde £90 only.—Full particulars, Roland Rutter, Bury S Edmund's.

6h.p. Wolseley, three speeds and reverse, Bosch ma neto, 700 by 85 Dunlops, Stepney, lamps, flaish green, and guaranteed; trial; £45.—Nye's, 69, Leath Lane, Holborn, London.

A BARGAIN to immediate purchaser for £45.—10h 2-cyl. car, in excellent running order, four speed and reverse, Dunlop grooved tyres.—Address, H., 2, R chester Rd., Earlsdon, Coventry.

SMART Little Brougham, side entrance, 2-cyl., liv axle, 10-12h.p., extension over driver, lamps, etc £65.—Owen Cottage, Melbourne Lodge, Queen's Wall Ealing.

6h.p. Siddeley, 2-seater, steel frame, three-speed, r verse, lamps, new accumulator, Dunlop tyres, neat £34, or exchange for good bike.—Jameson, 16, Sout St., Sunderland.

10-12h.p., 2-cyl., 2-seater, cardan drive, three speed and reverse, complete, horn, lamps, etc.; £3 cash; twin motor cycle or Raleighette part.—Harris, 20 Midland Rd., Derby.

HUMBERETTE, 2-seater, smart little car, three speed and reverse, side change levers, lamps, etc.; sacri fice £22 10s.—Seen at Turner's Motor Garage, Pitts hanger Lane, Ealing.

6½h.p. 2 or 4-seated Gladiator, Aster engine, thre speeds and reverse, mechanically equal to new, very silent, and most reliable; £55; all lamps and tools motor cycle part; will give 50 miles trial.—Wm. Elce Leawood, Matlock.

STAR Car, 7h.p., 2-seater, with Cape hood, wind screen Stepney, lamps, and complete spares; the car is in excellent condition, tyres almost new; £100.—Apply H. W. Pulleyn, 8, Coppergate, York.

SPEEDWELL, 15h.p., 4-cyl., side entrance car, mag neto and electric ignitions, M.O.V., splendid con dition; £85; good motor cycle taken part payment.— Bedwell, Cherryhinton Rd., Cambridge.

12h.p. N.A.G., of Berlin, one of these famous makes may be had, price 142 guineas, mechanically perfect, elegant side entrance body, as new, leather hood and accessories, all complete, 2-cyl.; any examination trial given. Seen Surbiton.—Apply, 1, Belvedere Crescent, Waterloo, S.E.

ENGINES.

2¾h.p. Genuine De Dion engine, perfect; £2 15s.; seen any time.—268, Hornsey Rd., Holloway.

REX Engine Parts for 1906 to 1910 model.—Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

ENGINES.—Roc, 4h.p., single-cyl., new 1910 type; early deliveries.—A. W. Wall, Ltd., Birmingham.

HIRST Magnetos, for single-cyl. engines new, and guaranteed; £2 15s. each.—Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

7-9h.p. V.S., Peugeot twin, complete every way, including gear drive magneto, adjustable pulley, very fast; bargain, £10.—Olsson, East Hill, Oxted.

NEW 2¾h.p. F.N. Engine, carburetter, and silencer, complete; also 2¼h.p. genuine De Dion engine; what offers?—Sawer, 210, The Moor, Sheffield.

ENGINES, Engines, Engines, twin or single-cylinder, for car, cycle, boat, and aeroplane. Send for particulars to Advance Motor Mfg. Co., Ltd., Northampton.

COMPLETE Engine, 3h.p., 76 by 86, Amac, 1909, h.b.c., 30s.; also 7ft. 6in. 1in. Stanley, new, 5s.; two Longuemares, 2s. 6d. each.—Preston, 2, Foxbourne Rd., Balham.

ENGINES.—2¼h.p. J.A.P., brand new, £4 15s.; 3½h.p. M.M.C., £3 10s.; 3½h.p. Chater-Lea, M.G.V., £5; 2¼h.p. De Dion, £3; 3h.p. motor cycle engine, £2; 2½ h.p. ditto, 30s.—128, High Rd., Tottenham.

MOTORS for all purposes. Motors for your aeroplane. ¼h.p. practical petrol motors; 500 machined sets, 9s. 9d.; cycle car, launch, aerial motors; castings of all sizes; propellers; full list 4d.—Madison Aerial Works, Littleover, Derby.

CASH, Instalments, or Exchange.—Engines, new and second-hand, powers to suit all; repairs to motors, gears, magnetos, coils a specialty, with 13 years' Coventry experience; 2¼h.p. converted to 3½h.p.; see testimonials.—The Record Motor Co., Wembley, Middlesex.

THE MOTOR CYCLE

Vol. 8. No. 373. May 19th, 1910.

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THE VALUE OF RACING.

By B. H. DAVIES.

SOME of the excited spectators of the T.T. Race regard themselves merely as the privileged witnesses of a sporting spectacle. The stay-at-homes, who are not lucky enough even to see it, are often apt to grumble at the expense of the race, which is, of course, passed down from hand to hand until it reaches the "consumer" ("consumer," by the way, is rather an apt description of certain users of motor cycles). These notes are intended to justify the existence and expense of the T.T. Race. Some of our Northern friends are very fond of asking, "What is the good of the A.C.U.?" As the T.T. is an A.C.U. event, I hope they will digest them.

I assert that racing is a factor of enormous power in the development of the motor cycle. Progress there would no doubt have been if there had never been any racing; but racing results in

(i.) Rapid progress.
(ii.) Cheap progress.
(iii.) Compulsory progress.

Rapid Progress.

The rapidity of progress is visible when we compare the engines of 1902 with those of 1910. In 1902 I owned an 84 × 84 mm. engine. It weighed nearly 80 lbs. (as against, say, 56 lbs. to-day), it developed 3 h.p. (as against nearly 5 b.h.p. to-day), and it could maintain its maximum output for about a quarter of an hour from a cold start (as against five hours at least with a first-rate 1910 engine). Picture the maker of that engine attempting to improve his engine without racing. As every engine designer and builder knows, he will probably have to make a dozen experimental engines before he arrives at what he wants. He cannot tell whether these engines are any use or not till he has tested them. Without racing, he can only test them by mounting each engine in a frame, and paying a good tester a high wage to devote six months to knocking that engine about on the road. After the six months are up, he may know from his tester's reports that not one of the dozen experimental engines approaches his ideal, and he may have to begin the whole weary business over again—many a maker has undergone not one, but ten experiences of the kind.

In the meantime there is next year's market to be catered for. There is no time to ascertain whether the experimental engine can be trusted to raise his reputation; so he adds a few talking points to his 1902 engine, he corrects one or two of its simplest and most obvious defects, and markets a 1903 engine which is practically identical with that which he sold in 1902. This is the sort of thing riders had to put up with before the T.T. Race and Brooklands came into being. Either we got a novel but untested engine, which was radically bad as often as not; or else we got the same old engine we had driven in the previous year, with just a few detail alterations.

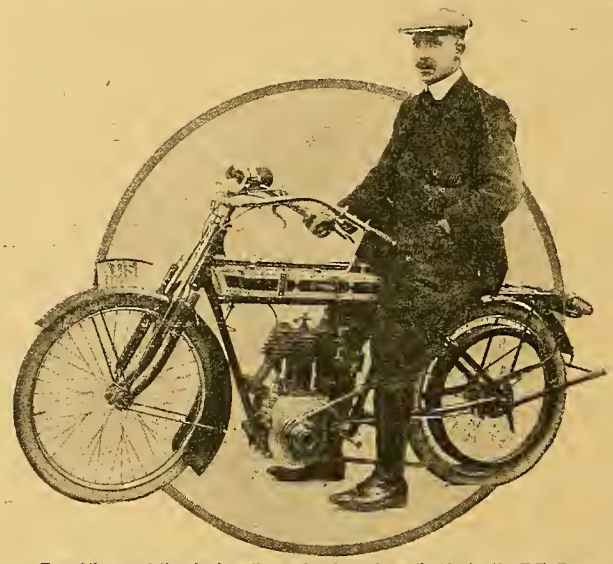
Now picture the same maker with racing to help him, Brooklands available, the T.T. Race in the near future. Five hours on open throttle on the track or in Manxland constitute a more searching test than six months on the road. The new ideas are rapidly verified. Small alterations are incorporated in old engines, the new engine can be built in a month or

The Value of Racing.—

less, and anything new can be tested thoroughly within twenty-four hours of its being completed. The maker no longer follows that elusive will-o'-th'-wisp of the "bench test"—the grave of many hopes and reputations. He takes a season's wear out of an engine in a day on the track. If the idea is imperfect or hopeless, something different is swiftly set up and tested in the same way. Many a designer claims to have learnt more in three months with Brooklands and the T.T. to help him than he had learnt in six years of roadwork. Racing accelerates progress beyond belief.

Cheap Progress.

When you are setting out to produce a better motor cycle engine than anybody else, cheapness is strictly a comparative term. Absolutely it is not going to be a cheap job, unless you have real genius and real luck. But the expense varies. Under the old *régime* you spent months testing a score of designs on the bench and on the road. Under the new *régime* you keep but one tester—yourself, very probably—and you test each idea in a day. If there is something wrong, you do not have to wait months to test a modification of it; you have to wait just so long as the pattern-makers and foundry take to supply the new parts required, and in twenty-four hours after they are delivered you know what the thing is worth. Moreover, you do not have to keep your market waiting. Under the old scheme you had no market at all, or else a poor market, while your tests lasted—and they lasted months. You wanted a big capital to face a year which was all out-goings and brought no income. Now you can enter the business at Christmas, win a race or two by Easter, and be hard pushed for deliveries by Whitsun—this makes for cheap progress, early sales, and economical, rapid testing.



Tom Silver and the single cylinder Quadrant he will ride in the T.T. Race. The engine measures 82×90 m/m, the valves being situated fore and aft. Spring frame and forks will be used, also Simms magneto, Dunlop tyres, Watawata belt, and a new pattern Quadrant automatic carburetter.

Compulsory Progress.

Progress is competitive. Its rate depends upon the fastest man in the trade. When the general rate was necessarily slow, as in the early days prior to Brooklands and the T.T., it was because no individual *could* develop his machine fast. As soon as one individual begins to outstrip the ruck of makers, they all become hungry for improvement in their wares. If I could to-morrow produce a new engine, and beat all the expert road and track racers into fits with it, I should not only benefit myself, I should compel all the existing firms to produce new engines in order to compete with it. Racing provides a few keen spirits with the opportunity of making great strides in efficiency. The stick-in-the-muds were *compelled* to follow suit; and nowadays, except for a few freak side-tracks of the market, every engine maker is out for blood—he is compelled to develop the efficiency of his engines very rapidly in order to live. All the makers are compelled to utilise the opportunities afforded by the T.T. and Brooklands; if they do not, they would soon have to put up their shutters, for others would be picking up saleable knowledge while they were standing still. Hence racing not only accelerates and cheapens the development of the motor cycle engine, but it renders such advances compulsory upon every maker; and the money we spend on racing ensures us a better machine every spring. Moreover, the credit of recognising the value of racing as a factor in development, and of forcing its use upon a reluctant trade and public, must be awarded without any deductions to the much-maligned A.C.U.

J. Mackay (3½ h.p Triumph) topping the hill in the Harrogate M.C.C. competition. This photograph is rather remarkable as it shows the back wheel jumped several inches clear of the ground by a nasty ridge and the rider clear off the saddle. He was nearly upset by this but just managed to keep up till he could stop the machine.

THE TOURIST TROPHY.

GOSSIP CONCERNING NEXT THURSDAY'S BIG RACE.

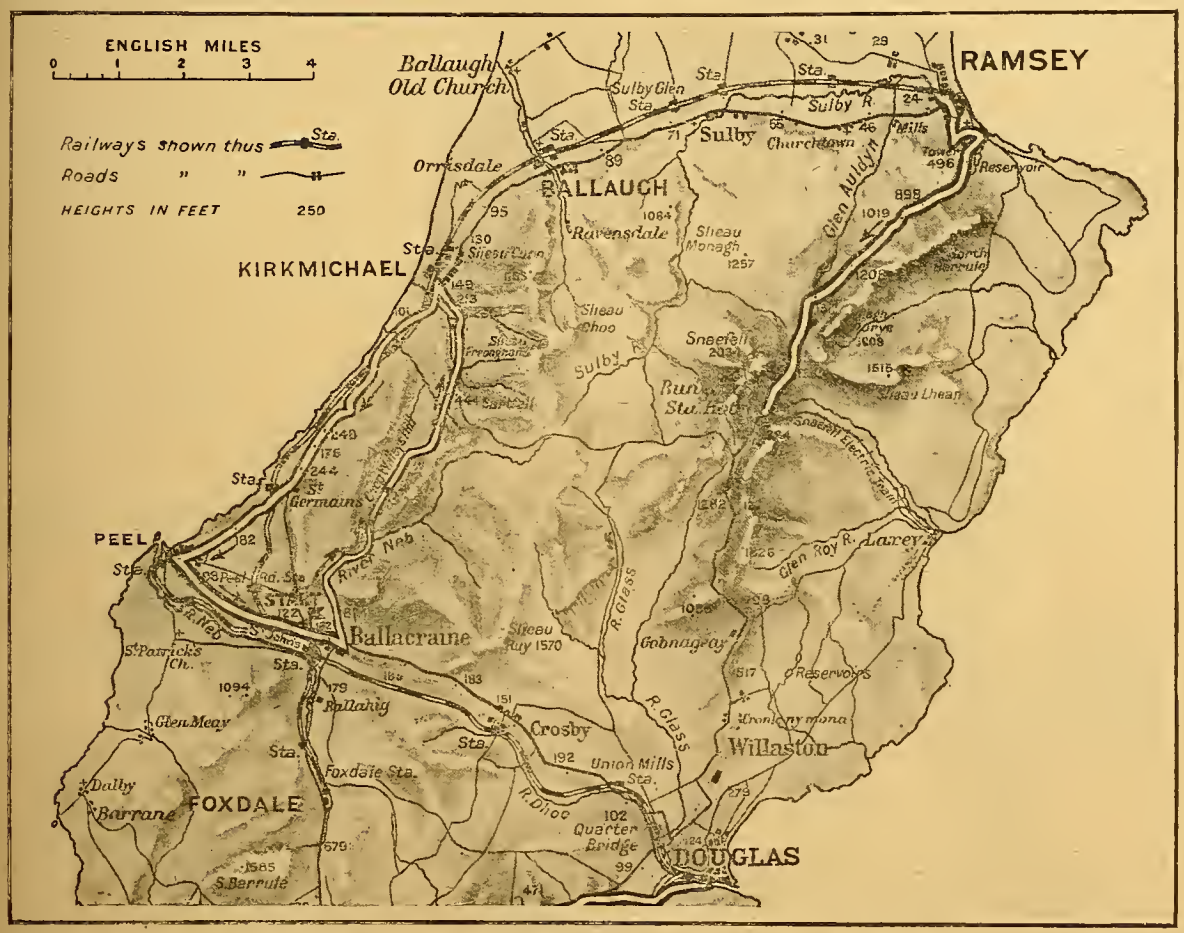
The map on this page shows the T.T. course in the Isle of Man. There was general satisfaction by the announcement in last week's issue of *The Motor Cycle* that the old course was to be used. Starting from St. John's at 10 a.m. on Thursday next, the 26th inst., competitors will be despatched in pairs at regular intervals in the direction of Ballacraine, thence proceeding by way of Creg Willey's Hill to Kirk Michael, back by the coast road to Peel, and completing the triangle to St. John's. Ten circuits will be covered, making a total distance of 158 miles 220 yards.

The prizes will be as last year, viz. : 1st, £40; 2nd, £20; 3rd, £10; 4th, £5. A silver cup will be awarded to the first private owner not finishing among the first three, and a silver medal to all who complete the course.

The entries comprise a record. Eighty-three were received at ordinary fees, *i.e.*, forty-three single-cylinders and forty twins, so that again the feature of the race will be "the battle of the cylinders." Next week's race promises to be the most exciting event in the annals of motor cycling.

Interest in the race is more pronounced than ever. Parties are being made up in most of the large cities.

Practising for the Tourist Trophy on the Isle of Man course commenced yesterday (Wednesday). Competitors are allowed to indulge in speed round the course from daybreak until 7.30 a.m. No competitor is allowed to pass Ballacraine corner after 7.15 a.m.



The T.T. course in the Isle of Man, showing also the venue of the hill-climb, starting from Ramsey, the day following the race for the Tourist Trophy.

Machines will not be weighed this year, but after the inspection by the judges brakes and silencers will be tested for efficiency at St. John's at 10.30 a.m., the day prior to the race.

The A.C.U. headquarters during the Isle of Man week are the Sefton Hotel, Douglas.

Special excursions in connection with the race are being run from Liverpool by the Isle of Man Steam Packet Co., and details will be found in last week's issue, page 424.

On the afternoon of Friday, the day after the T.T. Race, the A.C.U. will hold a hill-climb on the monntain road starting from Ramsey and finishing at the Bungalow. Eight classes have been included, embracing all types.

In connection with mechanical details of the machines, especial notice will be taken of the two-stroke Scotts, the Premiers with auxiliary exhaust release, the new m.o.i.v. Rex twin, and the doings of the Indian tribe—probably the most fancied of the whole of the entrants. Still, the Matchless-J.A.P. machines usually require to be reckoned with.

ROTARY ENGINES.

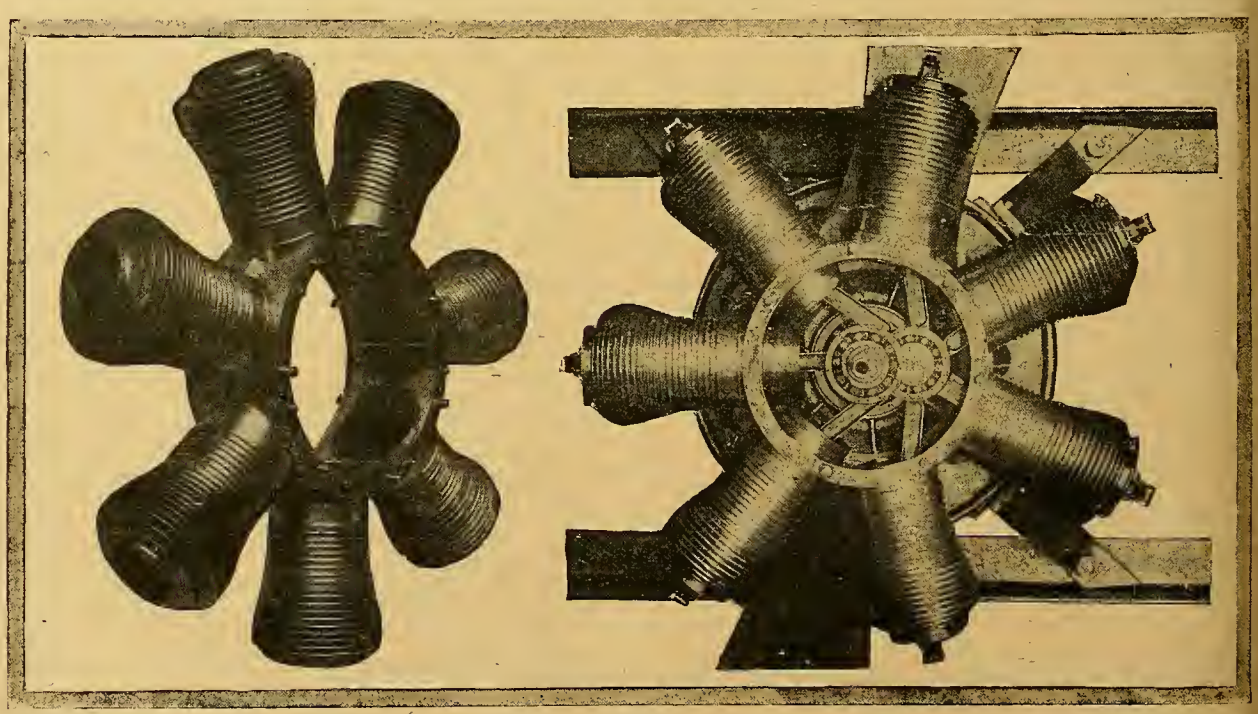
THE splendid flights of the two aviators, Grahame-White and Paulhan, show us many things. They show to the public how far the art of building aeroplanes has progressed; to the student of aviation they show how the French type of machine, at first heavy and unsightly, with its box tail and vertical curtains, has been perfected, and now stands as the best all-round design. It is to the engineer, and particularly to the motor engineer, however, that the full text of the message is shown, for it shows that the Gnome engine has at last gained its rightful position. This is as it should be, as it is without doubt the only true exponent of the rotary air-cooled aero engine. Its makers faced the problem of how to produce a light, reliable, and powerful engine, and did not hesitate to cast overboard the more conventional types, when they found their shortcomings, and go in for an entirely new design.

The Critics shook their Heads.

At first the critics shook their heads, and prophesied no end of troubles, but step by step the Gnome has been tested, short flights leading to longer flights, slow speeds to faster speeds, and all the time the engine has given proofs of its reliability. Few have been its failures, and there must always be some little weaknesses overlooked in new designs.

It is to be expected that when a new and successful design is brought out, many imitators blossom out with similar ideas—witness the Knight-Daimler engine and the Challenge reinforced air tube—but it is strange that no firm has so far imitated the Gnome engine with any success. One would have thought the French motor firms would have seized upon the idea at once, for it is not like them to let a good thing pass [There is more than one French rotary air-cooled engine made for aeroplanes, and on the next page we describe and illustrate a new one to readers of *The Motor Cycle*.—ED.]; and how is it that none of the big motor cycle manufacturers have been taken up with the notion? Are they too busy fulfilling orders for the present type to think about the future?

What most find fault with is the system of lubrica-



The Seven-cylinder Air-cooled Gnome Revolving Engine used by Grahame-White and Paulhan. The steel cylinders measure 4·3in. bore and 4.7in. stroke, and the engine develops 50 h.p.h. at 1,000 revolutions per minute. The weight complete is only 165 to 170 lbs. The left-hand view shows the cylinders and the ring on which they are mounted; the right-hand illustration the engine complete excepting end cover. The end of the hollow stationary crankshaft is discernible in this view. Portions of the propeller blades and the engine supports are also visible.

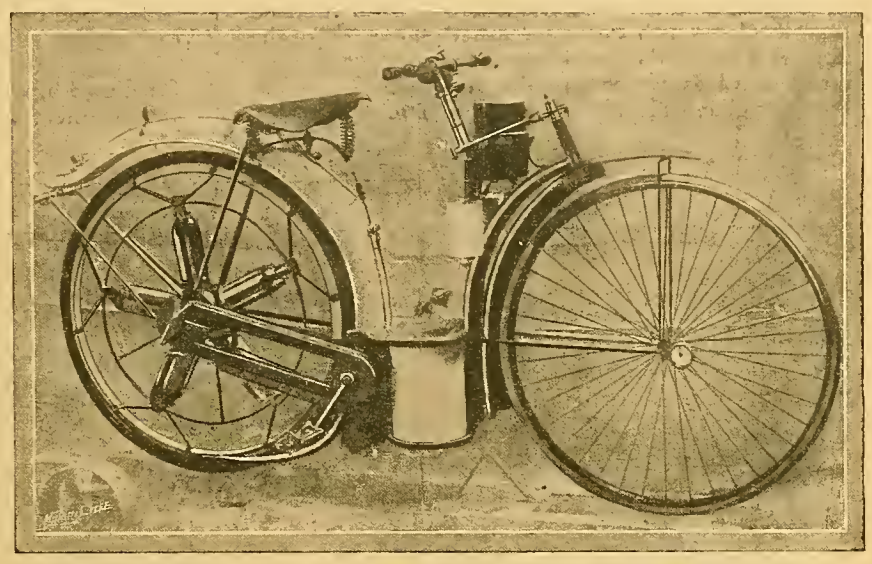
Rotary Engines.—

tion. It is all right for flying men, they say, but it would not do for motor cyclists, for when the engine is started the oil is flung about everywhere, and causes a dense cloud of smoke at the exhaust. It would spoil the appearance of the machine and rider in a very short time. There are three things to blame for this state of affairs: Firstly, the principle of giving the engine plenty of oil to prevent any chance of the bearings seizing; secondly, the system of splash lubrication adopted; and, thirdly, the inlet valves being in the centre of the piston head, the oil has a clear passage into the combustion chamber.

These matters could, I think, easily be remedied by using forced lubrication and moving the position of the inlet valve to the cylinder head. As regards silence, I think by careful designing the rotary engine can be made to have a really noiseless exhaust. The cause of the increased noise is the rush of the exhaust gases meeting the still air. Now, by allowing these gases to impinge upon the air after the manner of the steam in "Hero's" turbine, the gases and air would meet each other at nearly the same velocity, and the noise would be greatly reduced, and at high speeds might cease entirely.

So vast are the possibilities of this type of engine that it would be of little use going into them all at this juncture, when everything relating to them is in a more or less experimental state, but there are two points on which I would like to touch.

One is the idea of using the engine as a balancing agent, something after the manner of the gyroscope. I know most people say this gyroscopic force does not come into action until a huge speed is reached, but I think it is always there, no matter whether the speed is one or ten thousand revolutions per minute. Imagine being able to balance your bicycle when stopped by traffic without any bother, like Brennan's mono-railway train. Yet it might not be impossible with a clutch.



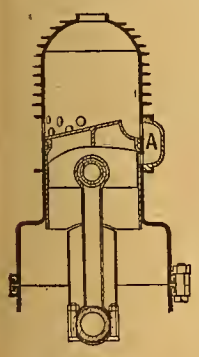
As early as 1896 a rotary engined motor bicycle was built in France. It is illustrated above, and it will be observed that the engine has five cylinders and is located in the rear wheel. Surely this would be a valuable addition to any museum.

Then with a rotary engine the long-wished-for forced induction might become a reality, for when the engine is describing a circular path through the atmosphere the air in front of the cylinders is under compression. With experimenting, it might be possible to utilise this compressed air for increasing the compression at high engine speeds.

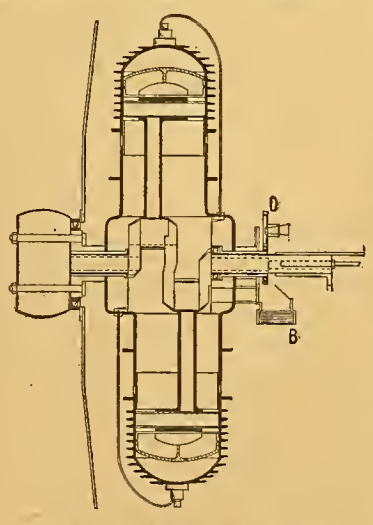
These are a few of the points which give the rotary engine such a fascination, and I hope a discussion on them will lead to something tangible in the way of rotary motor cycle engine experiments in the near future.

A TWO-STROKE ROTARY ENGINE.

The simplicity of a two-stroke rotary engine and its possibilities for motor cycle use are appealing to many engineers. To keep up this interesting discussion we give a brief description with two rough sketches of the Farcot engine, for which we are indebted to our contemporary *Les Sports*. Unlike the Gnome engine, which has an odd number of cylinders, the Farcot *aerotwrbine*, as it is called, possesses only two, which are turned from solid steel bars as is the case with the Gnome. The mouths of each cylinder are enlarged to allow them to clear the cranks as they revolve around the fixed crankshaft, the two being bolted together and carrying between them the bearings on which the crankcase and the whole engine revolve. The Farcot is a two-stroke engine, compression being obtained in the crankcase when the opposed pistons come together, the mixture being drawn into the engine through the hollow portion of the fixed crankshaft. Presumably, there is some kind of rotary sleeve valve in the crankshaft to prevent the escape of the gases drawn into the crankcase, but it is not clearly shown in the sketches. The transfer of the gas from the crankcase to the cylinder heads is obtained by means of ports in the sides of the pistons, which com-



Cylinder, piston, and crank-case of the Farcot engine.
A. Transfer passage.

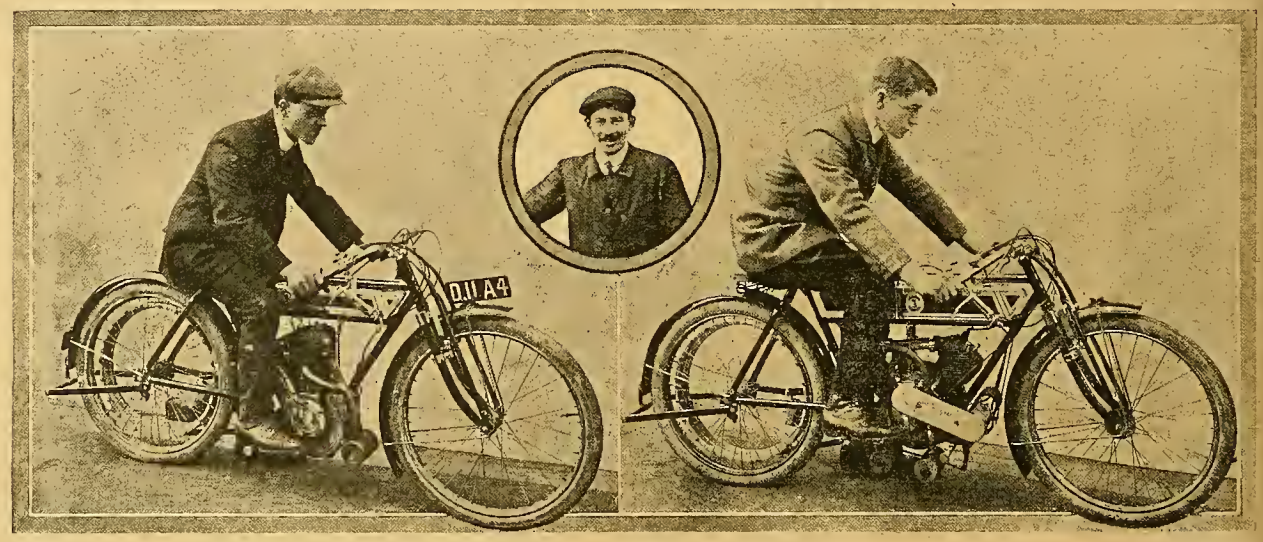


The Farcot two-stroke rotary engine.
D. Fixed distributer.
B. Attachment for carburetter.

Rotary Engines.—

municate with transfer passages attached to the sides of the cylinders. The transfer passages are made of aluminium and lettered A in the sketch fig. 2. The exhaust escapes when the pistons are at the bottom of the firing strokes, and it is claimed that with a revolving engine this system has a turbine action derived from the force with which the exhaust gases strike the air. If desired the gases can be directed against a series of vanes to increase the turbine action. The Farcot engine, which, owing to its two-stroke principle, is, of course, of the most simple construction, is said to develop 28 to 30 h.p. for a weight of 30 kilogrammes, which is, of course, equal to 1 h.p. per kilogramme = 2¼ lbs. The weight mentioned comprises the magneto, carburetter, and pump for circulating the lubricating oil. No details are given as to bore and stroke, but the dimensions must be far greater than the Gnome, as the engine has only two cylinders for its 30 h.p. as compared with the seven cylinders on the Gnome 50 h.p. engine. The absence of poppet valves in the Farcot is a great point in its favour.

THE PREMIER REPRESENTATIVES IN THE T.T. RACE.



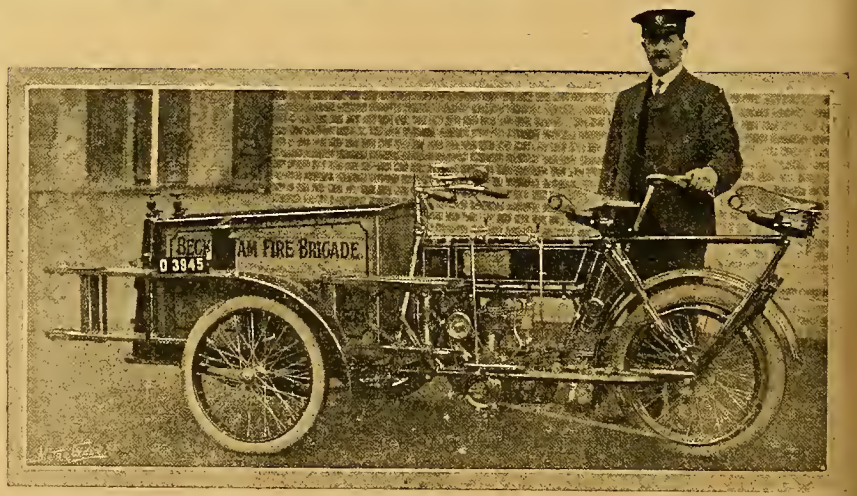
G. E. Stanley astride a 3½ h.p. Premier with auxiliary exhaust ports.

F. Savory will ride a 3½ h.p. single-cylinder similar to Stanley's.

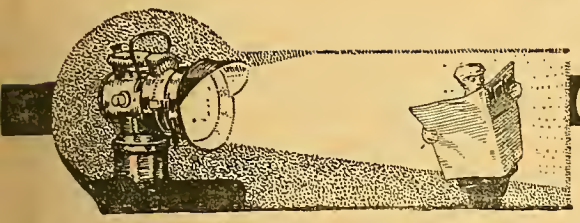
B. Vickers Jones, who will ride a twin m.o.i.v. Premier with cylinders at 90°.

FIRE TRICAR'S GOOD WORK.

THE first aid N.S.U. tricar at the Beckenham (Kent) Station, which was built to the specifications of Mr. H. S. Gear, the engineer, has now been in use for over eighteen months, and, thanks to careful attention *en garage*, we are informed, has made a non-stop record so far. By the use of lighter fittings, Mr. Gear has got the weight down over half a hundredweight. Recently it was timed to attain over 30 m.p.h. on a level stretch of road—evidence that it is maintained in first-class tune. It is interesting to hear that the machine has proved a success, and by reason of its low cost and small working expenses it is surprising that this class of machine is not more in vogue. Only one or two stations in this country at present are equipped with first aid motor cycle appliances, though in Germany tricars are rather largely used both for salvage and postal carrier work. Mr. Gear does not consider a single-seated machine or side carrier at all practicable for this work. He much prefers a two-seated three-wheeler



The first-aid N.S.U. Tricar at the Beckenham (Kent) Fire Station. Mr. H. S. Gear, the engineer who was responsible for the specification of the machine, is standing by its side.



Occasional Comments

"By Ixion"

The T.T. Course in the Isle of Man.

A suggestion came before the Competitions Sub-committee last week that it might be well to increase the length of the Tourist Trophy course. With ninety riders racing over a fifteen mile lap there is a man to every 300 yards of road, and the present course is too cornery and narrow to make riding in such close company either specially safe or specially pleasant. This year the men will actually be started in pairs at intervals of twenty seconds in order to get the last man off before the first man is round at the starting post again. I should say this is a matter which might be referred to the competitors themselves. As a spectacle the race is certainly enhanced by this crowding; that the relative positions of the men are difficult to follow is a drawback which must exist under any conditions. The latest decision of the Competitions Sub-committee was that the course should not be altered, but I think that if the men would prefer to be strung out more sparsely over a longer lap the reform should certainly be engineered if possible, and it might be possible to include the mountain road and its hairpin corner, if such an inclusion is not too dangerous.

Timekeeping in Small Hill-climbs.

Club secretaries always have an anxious time when they come to arrange for the timekeeping in a small closed hill-climb. They cannot afford to engage expert watchholders, and local sporting men seldom possess either the skill or the expensive chronometers essential to correct time taking. I suppose the commonest escape from the difficulty is to employ a single watchholder at the top of the hill, who starts his watch when he sees a flag at the bottom fall; sometimes the men are given a flying start, and the single timekeeper starts his watch at the fall of a flag, which is dropped when the riders cross a tape at full speed. We know very well that on a short hill the three or four fastest men are seldom separated by more than tenths of seconds, or, at the outside, one or two seconds. The methods described leave a large margin for error and resemble most disagreeably the ways of the hedge policeman so often exposed in court. The flag-wagger is almost compelled to fail in accuracy of signalling. He simply cannot drop his flag at the precise tick when each front wheel touches the tape he has pegged across the road, and his variation from too early to too late will often amount to a whole second either way, *e.g.*, one man may be two seconds slower than another competitor, and yet be credited with the fastest time.

Similarly, there is another loophole for error in the timekeeper himself. The chance of his being a little wrong with his watch at the finishing tape is always present, and the best safeguard is to employ none but men with ample experience and a high reputation with speed timing. But under the conditions described a second far more serious opportunity for mistake is added, since the watch is started when a small flag is dropped perhaps a mile away.

It is humanly certain that men have been credited with the fastest times in such events when they have actually been four, five, and six seconds slower than another man returned as much slower. So we come to the very practical difficulty, what is the poor hon. secretary to do?

Let us understand the purpose of these climbs is not to discover the actual time taken by the best *machine* in the club to climb a certain hill, but to discover which *member* can climb hills fastest. I should therefore advise the selection of a straight hill as steep as can be found, but it does not really matter if it is tolerably easy. Send the men up in pairs, starting at a pistol shot or the word "go." The winners in the first round are then pitted against each other, till finally the fastest man is determined. I know no other reliable method of arriving at the fastest man without going to the expense of engaging A.C.U. official timekeepers with £50 chronometers.

More Sporting Events.

A hill-climb on the above lines is far more sporting, both for riders and spectators, than the stereotyped pattern. If a single watch be adhered to, in the hands of an unskilled man, I much prefer the standing start.

A few members of the Reading M.C.C. photographed on the occasion of the inaugural run.

The flag-wagger is then safeguarded against error, for he can drop his flag whenever he pleases, and the sole responsibility for mistakes then rests on the man with the watch. It is no use attempting to get accurate results with two £5 chronometers. No matter how cleverly they are operated, there is likely to be a serious discrepancy between them before all the riders have gone up. I must plead guilty to a strong penchant for the standing start in all motor cycle events.

As many of our Brooklands photographs show, it puts a higher value on the personal factor, and in club events a premium should be put not on the man who can buy the latest and most powerful machine so much as on the rider who can keep his mount in perfect tune and handle it smartly.

LETTERS TO THE EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

A Carburetter Experience.

[4766.]—Regarding "A. M. G.'s" letter [No. 4725], I was troubled with the same experience, and came to the same conclusion as he did, but, instead of removing the plunger and thereby being unable to flood the carburetter, I shortened it, and also shortened the guide an equal amount. I found that this overcame the trouble and that I could get a higher level of petrol in the jet whilst machine was stationary. E. HEATHCOTE BEAL.

Motor Cycling in India.

[4767.]—The great difficulty the motor cyclist has to contend with in India is the byle gharrie (bullock cart). These carts proceed along the roads just anyhow. The driver is fast asleep very frequently, and they are a perfect nuisance. No motor cycle horn is capable of awakening the sleeping gharrie walla, at least I have not found one. Has any horn been fitted to the exhaust pipe as is done in motor cars? Is this feasible? Can any reader inform me of some really efficient alarm? QUI HAI.

Bengal, India.

The Taxation Question.

[4768.]—Your correspondent, "A Lover of Justice," is quite right. It is a shame, when a working man or an impecunious young fellow can just manage to raise five to nine pounds to buy a second-hand mount, that he should have to plant down 25s. (and shortly 30s., I suppose) before he can take it on the road. But has it occurred to your correspondent that this is just the reason why second-hand machines are so extraordinarily cheap? If one could take a machine on the road on payment of, say, 5s., or nothing at all, I should expect to see second-hand ones go up two or three pounds at the least owing to the greatly increased demand. J.H.R.

The Spring Quarterly Trials.

[4769.]—I have seen no word of thanks recorded in your excellent paper for your kindly thought in providing the tea for us riders in the last A.C.U. Quarterly Trials. May I venture to be one of those who publicly congratulate and thank you on what was a kindly act, and a very thoughtful one. I for one appreciated it, and I think that many more of the riders will join with me in admitting that we ought to say thank you for your thought of us. The trials are very trying times, and this tea is one of the things that make them homely, so perhaps you will publish this letter to show that the action you took is thought well of, like most of the things in your paper. Do not be shy at publishing your own praise, you deserve it this time. Do you not agree, readers of *The Motor Cycle?* A pat on the back may do us another good turn next time, eh! and we may get the same comfort as we got this time, when we found *The Motor Cycle* thinks of its readers in the Quarterly Trials.

(Rev.) R. MEASURES.

P.S.—May I suggest that we all buy an extra copy of the paper to show our appreciation.

Rotary Engines.

[4770.]—Your leading article on "Rotary Engines" recalled to my mind a short run about two years ago on one of the Barry motor bicycles, fitted with a two-cylinder rotary engine. Although the machine was only in my hands for a very short time, I was much struck by its good qualities. One of its peculiarities was that the valves had no springs, and worked by centrifugal force, with the result that the engine had to make one or two revolutions before there was any compression. The carburetter was attached below the hollow crankshaft, within about two inches of the ground, and the whole thing was fitted in a standard Chater frame, with a guard above the cylinders. The machine was extremely nice to drive, very flexible, and free from vibration, and, of course, there was a considerable saving in weight and an absence of overheating. I cannot speak as to the power developed or as to any difficulty in lubrication, but it struck one as being an engine with a great future.

If some of those enthusiasts who advocate water-cooling for motor cycles were to turn their misguided energies towards the perfecting of a rotary engine of this type, they would be doing some good, not only for themselves, but for everyone. BENJAMIN CONSTANT.

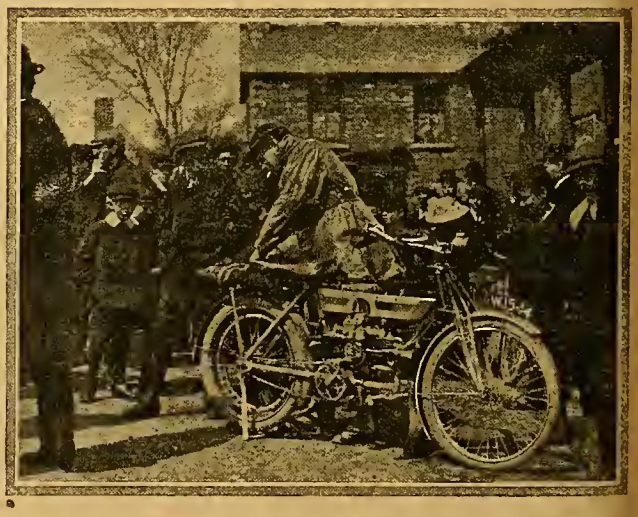
Increase of Speed on Partially Raising the Exhaust Valve.

[4771.]—I read with much interest the letter in your issue of April 28th from the Colville Motor Works with reference to the much discussed question as to why partially raising the exhaust valve lifter causes an increase of speed.

May I venture to suggest that the "bounce" of the ordinary mushroom valve on its seating, after being closed by the cam, is the usual cause of "blow-back" into the carburetter and spraying of petrol through the air inlet—that is, assuming engine is correctly timed. The inlet valve would, under the circumstances, be partially open at the commencement of the compression stroke, thus forcing out again a portion of the charge.

This theory is borne out by the fact that fitting a stronger spring frequently cures the trouble, which would make the valve less likely to bounce on its seating at ordinary speeds. It would be interesting to watch the action of the inlet valve of some machine afflicted with this complaint by means of the revolving mirror to see if this were the case. It is quite possible that this fact has a good deal to do with "abnormal running," about which there has been considerable correspondence in *The Motor Cycle*.

VALVO.



Bradford M.C.C. 200 Miles Trial for the N.S.U. Cup. One of the competitors riding a Douglas, preparing to leave Kendal en route for Keswick.

An Extended Trial of a Scott.

[4772.]—I was much interested in the article appearing in the issue of April 21st describing an extended trial of a Scott motor cycle.

As a rider of one of these machines for about the same distance—700 miles—I can fully bear out all that you say with the exception of the petrol consumption. I found that by fitting a smaller jet than that sent out with the machine this could be very considerably reduced. On the London to Harrogate and back run the machine was doing seventy-five miles to the gallon. This smaller jet gives ample power for ordinary riding, but I found it necessary to put in the larger one for Sutton Bank.

Jet changing on the Scott is a very simple matter, it only being necessary to slide a cover from over the jet and screw jet out with a special key provided.

Perhaps I should add that I have no interest whatever in the Scott Co. except as a satisfied rider of one of their machines.

F. J. BEARD.

Wanted, a Tyre for Irish Roads.

[4773.]—I have been a motor cyclist since February 20th, 1909. I ride a make that is very popular—3½ h.p.—and have nothing but praise for the machine. But oh, the tyres! I ride an average of seventy miles per week, and have ridden out five new tyres since the above time and one half-worn one also. This works out at about 780 miles per tyre. Can I get a rim that will suit a car tyre, or is any motor cycle tyre made like a car tyre? I don't want anyone to recommend any of the ordinary make of cycle tyres, as I do not believe in any of them. Is a 28in. wheel better than a 26in. for going over potholed roads? In conclusion, I may say myself and another are the only motor cyclists in a quarter of a county. Owing to heavy upkeep in tyres we can never recommend motor cycling to the many who make enquiry of us. Hoping that someone will put me up to something in the way of a long-lived tyre for Co. Londonderry bad roads,

T. P. HENRY.

Weight of Twin-cylinder Models.

[4774.]—In "Occasional Comments" of March 21st, "Ixion" remarks on the disproportion of weight and power between the 5 h.p. twin and the 3½ h.p. single. As usual he is shrewdly right, but I should like to tip him an exception in twins—if the model is still made. Some four years ago the "Griffons" had a vogue here and a large number of singles and twins were in use. The singles (of which I owned one) were 75 mm. × 80 mm., rated as 2¾ h.p., and the twins, called 5 h.p., were made up of two of the 2¾ units. Of a large batch of twins two only were imported with accumulator ignition and loop frames. The magneto twins (magneto in tank with shaft drive) were good, but the two accumulator machines were wonderful, and I have not yet seen anything to equal them for general excellence. Both are still running and both have done sidecar solo work ever since they came out over such country as you don't get in England. A few months back I had one on loan, and a scale being handy three of us weighed our mounts fully equipped just before starting on a trip. The weights were so remarkable that I jotted them down in a pocket book. A 2¾ h.p. N.S.U. (80 mm. × 75 mm. I think) came out at 169 lbs., a 1909 Triumph at 192 lbs., and the 5 h.p. Griffon at 165 lbs. All the machines are here, and these weights can be easily verified. Stripped, the twin Griffon would come down to between 140 lbs. and 150 lbs., and as for strength, well, both these looped-frame machines have done more hard and rough work than anything else here, and so far as I know neither has had a structural breakage. In engine flexibility and general smoothness of running, my present mount (a four-cylinder F.N.) is not their superior, but I cannot say the same of the magneto Griffon twins. Of course, these battery machines had their faults, of which for touring purposes the battery was one, and the contact-breaker another. This latter was quite good, but of a most delicate constitution and supersensitive to adjustment.

I wonder if the Griffon people still make this twin model; I should like "Ixion" to try one.

Bloemfontein. J. G. W. GORDON.

Another Tourist Trophy aspirant. F. W. Barnes (3½ h.p. Zenith-Gradua), 85 x 87 J.A.P. m.o.i.v. engine, B. & B. carburetter, Bosch magneto, and Continental tyres.

Water Cooling on Motor Bicycle Engines.

[4775.]—Following my letter of March 3rd (published in the issue of April 14th) regarding water-cooled motor cycles, it may interest readers to know the recent successes of the Lewis machines I wrote about. On the 12th of March two hill-climbing contests, promoted by the Norwood (an Adelaide suburb) Cycle and Motor Club, were held on what we know as the Greenhill Road. This road is noted as a good hill test, and a stiff wind blew down the hill. Lewis, N.S.U., Rex, Triumph, and Norton motor cycles competed, and the chains attached to the pedalling gear had to be removed, making the test very severe, as twenty-one bends (some very sharp) had to be negotiated in a distance of just over four miles. In the higher reaches the hills rise on the one side of the road several hundreds of feet, while on the other side are precipices of two to three hundred feet deep.

The cubical capacity of the Lewis water-cooled engines which were used is 376 c.c., Rex 470 c.c., Triumph 476 c.c., N.S.U. 402 c.c. The results were as follow on the formula $\frac{W}{C \times T^2}$

	Points.
Open Event.	
W. Courtney (water-cooled Lewis)	280
F. C. Gogler (Rex)	218
C. R. Churchward (water-cooled Lewis) ...	176
W. Allnutt (water-cooled Lewis)	136
Continental Trophy (Private Owners Only).	
C. R. Churchward (water-cooled Lewis) ...	203
W. Sampson (Minerva)	154
W. Allnutt (water-cooled Lewis)	135
C. Anderson (Triumph)	124

On February 26th the same club held a petrol consumption test over a distance of twenty-five miles. C. R. Churchward was first, 192 miles to one gallon, weight of machine and rider 365 lbs.; W. Courtney second, weight of machine and rider 333 lbs.; both on water-cooled Lewis motor cycles.

ALFRED MOYLE.

Northfield, South Australia.

EXPERIENCES WANTED.

"W" would be glad to hear of any users' experiences of: (1.) The 1910 Norton 4-5 h.p. single-cylinder long-stroke motor, with or without a passenger attachment. (2.) The Fitall two-speed gear. (3.) The Hellesen system of ignition, especially as compared with magneto ignition.

"W.L." (Edinburgh) would be glad of readers' experiences of the Auto wheel, described in our issue of the 22nd November, attached to an ordinary bicycle carrying a ten stone rider.

"A.I." (Accrington) will be glad of readers' experiences with the Millennium two-speed hub. Is it suitable for sidecar work?

"A.B.D." (Polesworth) would be glad of readers' experiences with a 3½ h.p. Triumph and two-speed gear for occasional sidecar work, with extra cost of running.

CURRENT CHAT

TIME TO LIGHT LAMPS

May 19	...(GREENWICH)	8.49 p.m.
,, 21	... ...	8.52 ,,
,, 23	... ...	8.54 ,,
,, 25	... ...	8.57 ,,

SPECIAL FEATURES

THE LONDON-EDINBURGH RUN AND RETURN JOURNEY FOR THE M.C.C. CUP AND MEDALS.

NEXT THURSDAY'S T.T. RACE. ROTARY ENGINES.

The London-Edinburgh Run.

Those who may have felt inclined to criticise the holding of the London to Edinburgh run before the funeral of King Edward must bear in mind that if the competition had not been held at Whitsuntide it could not have been held at all during the present year, and the large number of people concerned would have been put to great inconvenience. Moreover, the holding of the event was justified by the gracious command issued by King George last week.

The End-to-end Sidecar Record.

A prominent amateur motor cyclist, who hails from a town north of the Trent, intends early next month to attempt the John-o'-Groat's to Land's End sidecar record, using a 3½ h.p. single geared 1910 Triumph, and Mills-Fulford sidecar attachment. With good weather and plenty of luck he has hopes of just beating the existing figures. We feel sure all sporting readers will wish him success.

New Records.

We are informed by cablegram from America that De Rosier, on a 7 h.p. Indian motor bicycle on the Los Angeles circular wood track, on May 7th, covered fifty miles in 39m. 13s. and 100 miles in 86m. 14s.

Police Traps.

Motorists along the Birmingham to Stratford Road should ride cautiously between Stndley and Coughton. Motor cyclists are frequently timed on Rose Hill, Lickeys, so that care should be taken not to exceed the limit on the first part.

A Sporting Offer.

We have been asked to insert the following: Two keen motor cyclists offer to challenge any two riders in the world to a match of three miles on a grass track, under A.C.U. rules, for a purse of gold which will be given for the race. The two riders scoring the highest number of points out of three races to be the winners. Further particulars may be obtained from 'Speed," c/o this journal.

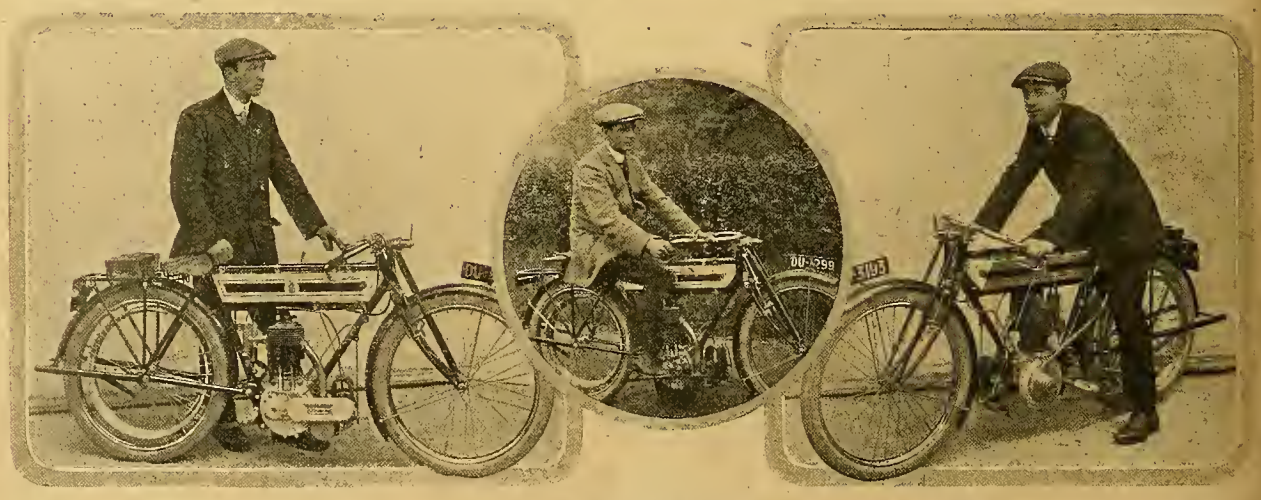
FUTURE EVENTS.

May 26 (Thurs.)—INTERNATIONAL MOTOR CYCLE T.T. RACE.
,, 27—Open Hill-climb in the Isle of Man
June 4—Motor Cycling Club second private race meeting and gymkhana at Brooklands.
,, 6-11—Scottish Six Days' Open Reliability Trial, organised by Edinburgh M.C.C.
,, 18—M.C.C. TEAM TRIAL FOR "THE MOTOR CYCLE" CHALLENGE CUP. Competing Teams: Motor Cycling Club (holders), Coventry and Warwickshire M.C., Bristol B. and M.C., Streatham and District M.C., Sutton Coldfield A.C., Edinburgh M.C.C., Southern M.C., Harrogate and District M.C.C., Great Yarmouth and District M.C.C., Herts. County A.C., Essex M.C., N.W. London M.C.C., Oxford M.C.C., Nottingham and District M.C.C., and Sheffield and Hallamshire M.C.
,, 25—Bradford M.C.C. Open Hill-climb.
July 4-9—A.C.U. End-to-end Reliability Trial.
,, 13—Open Irish End-to-end Reliability Trial, promoted by the Ulster Centre.

Harry Martin breaks the Five Miles Record.

It was a cold and cheerless afternoon on Wednesday, the 11th inst., when Harry Martin essayed to break the five miles record (flying start) at Canning Town track. The sky was overcast, and a strong wind blew from the south-east. At 3 p.m. Martin met with his usnal bad luck, as he collided with the railings and dislocated his ankle. However, a mere detail like this did not worry so old a stager as Martin. With assistance the injured joint was replaced, and at the end of a preliminary spin he signalled to the timekeeper, Mr. A. V. Ebblewhite, that all was ready, and started. The plucky attempt was soon successfuly over, and the five miles were covered in 5m. 26s. The best previous performance was by C. R. Collier, who traversed the distance in 5m. 40⅕s. Martin's machine was a Martin-A.S.L., J.A.P. engine, 85 × 60 mm., fitted with A.S.L. vibrationless air spring forks, and Amac carburetter. The tyres were Continentals.

A TRIO OF TRIUMPH RIDERS IN THE TOURIST TROPHY.



W. F. Newsome, who rode the first single-cylinder machine to finish in last year's event.

J. Marshall, who won the Trophy in 1908.

W. Creyton, who completed the course in the eleventh position last year.

All the above machines are 3½ h.p. T.T. Triumphs, with 85 x 88 mm. engines, Dunlop tyres, and Bosch magnetos.

Next Thursday.

The Motor Cycle annual Spring Issue and Special T.T. Number. It will be a much enlarged issue, containing special articles and illustrations of absorbing interest.

Brooklands Meeting.

The Whitsun meeting which was postponed on account of the death of the King will be held on Saturday, the 28th inst. It has been decided to reopen the entries, as it is possible that other motorists may wish to enter, and entries will be received up till 12 noon to-day (Thursday). Details of the two events for motor cycles were given in our issue of May 5th, page 402.

Record Attempts at New Brighton.

The N.C.U. meeting at the New Brighton track on Saturday, the 14th, was held in beautiful weather. On the programme were attacks on the mile motor cycle track record, held by A. J. Moorhouse—1m. 9⅗s. The first to try his luck was E. F. Baxter, T.T. twin Rex. He succeeded in doing 1m. 9⅘s. for the mile, just ⅕s. outside the track record. Then A. J. Moorhouse started on his Indian twin that he will use in the T.T. race, but pulled up at the end of the first lap, as his footrest touched the banking. The rest was raised, then he reeled off a lap in 21⅕s., two in 43⅘s., and a third within 1m. 5⅕s., which was well inside record. In the last lap he had a close shave, as he went up the banking in spite of cutting out. Right on the top he slightly wobbled, recovered, switched on, and finished amid ringing cheers.

The Three Miles Record.

Later Harry Reed on a Dot machine, fitted with one of the new twin J.A.P. engines, 85 by 58 mm., which he will ride in the T.T. Race, went for the three miles record, and covered the distance in 3m. 31⅖s. Then E. F. Baxter (twin Rex) made an attempt, and in the last lap let his machine get slightly out of hand. Everyone expected him to crash into the spectators on top of the banking. But he made a wonderful recovery from what appeared a certain smash, and finished in 3m. 31⅘s., only ⅖s. behind Reed. On examining the machine afterwards it was found the front tyre was flat and that the back wheel was sufficiently out of truth to allow the back cover to be scraped nearly through.

The T.T. Cash Prizes.

The winner of the trophy next Thursday stands a chance of hauling at least £100 in hard cash. The A.C.U. will give £40 to the winner, the Vacuum Oil Co. £25 on condition their oil is used, and Price's Patent Candle Co., Ltd., £21 without any restrictions. It is rumoured that a certain magneto company has also offered £25 to the winning single and twin-cylinder riders.

A. J. Moorhouse breaking the mile track record at New Brighton on his Twin Indian. Time, 1 min. 5⅕sec. The old record stood at 1 min. 9⅖ sec., also by Moorhouse.

Police Traps in the Isle of Wight.

It may interest motor cyclists who intend visiting the Isle of Wight to hear that motor traps are being worked on the main roads.

A Sporting Offer for T.T. Riders.

A real sporting offer exactly describes the gift of twenty guineas that the Price's Patent Candle Co., Ltd., have agreed to make to the winner of the T.T. Race, absolutely unconditionally as to the make of oil used. That Price's hope the winner will be using their brand of oil goes without saying.

A Motor Cyclist Golf Player.

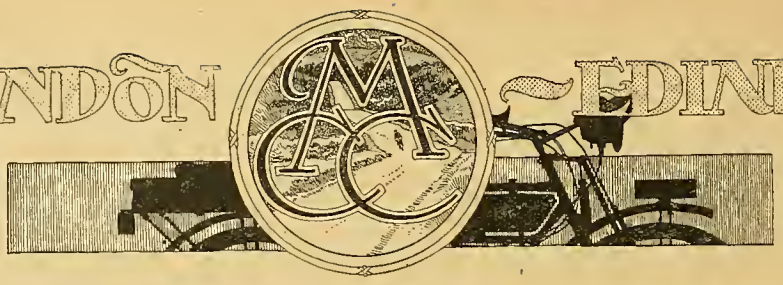
Mr. John Ball, the well-known golf player, has recently joined the ranks of motor cyclists, and, judging from his excellent play, his new hobby does not seem to have affected it.

The Latest Donation to the T.T. Fund.

We have received a cheque for one guinea from the Ulster Centre of the Motor Cycle Union of Ireland towards the Tourist Trophy Race Fund, which we are duly forwarding to the A.C.U.

The London-Edinburgh Run. Early morning in York. A batch of competitors checking outside the Windmill Hotel.

LONDON — EDINBURGH RUN



FROM the number of entries received, and from the universal enthusiasm displayed in connection with it on all sides, the M.C.C. famous run to Edinburgh, which is held every Whitsun, is clearly shown to be the most popular event in the year. Of the entry of ninety-eight motor bicycles and fifteen motor cycles with sidecars attached, the details of which were given in our issue of last week, eighty-eight of the former and all of the latter started on Friday night.

This year the first man was due to start at 9 p.m.—an hour earlier than on previous occasions—and, long before that time a large concourse of people had gathered in the open space at the top of Highgate Hill. Everything was beautifully organised. Motor bicycles and sidecars had their appointed places, and as their time drew near, each man fell into line and proceeded up to where Messrs. F. T. Bidlake (timekeeper), G. F. Sharp, and D. Leechman sent them off at half-minute intervals. Mr. Charles Jarrott, the club's president, was also an interested spectator at the start.

It was a glorious evening; the unsettled weather seemed to have melted away, it was not unduly cold, and the night was clear with a slender moon shining in the north-west. As the time for starting drew near, the crowd thickened, and the glow of acetylene lamps lit up the whole locality. Most men used two up-to-date headlights, some one headlight and an electric lamp in reserve; one or two used only feeble acetylene lamps, which hardly seemed to give sufficient light.

A flashlight picture of the start from the Old Gate House, Highgate. F. T. Bidlake, watch in hand, is about to despatch W. Hornsby, 4 h.p. Cheviot-J.A.P. Behind, waiting his turn, is W. M. T. Atkinson (3½ h.p. Cheviot). Harry G. Bell, the Trials Hon. Secretary, is in the background on Bidlake's left.

As Bidlake and his helpers took up their positions they were quickly thronged by spectators, but the police were

The second breakfast table at York. A few of the competitors snapped just before they resumed the northward journey.

alert, and rapidly opened up a channel through which the competitors could pass, and one mounted constable did splendid service, much to the amusement of the crowd.

The Start.

On the stroke of nine, Dickson (the captain), on a 5 h.p. Indian, was the first to be sent off. It was an impressive scene—the glare of the lamps, the throng of people on the balconies and at the windows of the surrounding houses, the good-tempered and business-like police, their helmets showing up in the glow of the headlights conspicuous among the spectators, and the gaunt figure of the mounted officer, who now and again effectually dressed the line and opened afresh the channel when it became narrow enough to threaten the safety of the riders. Dickson's start evoked a cheer, but whether or not the nation's sorrow had an effect upon the crowd it is hard to say, but the fact remains that until a number of the men had gone there was little cheering. Booth's car was pulled up quite close to the start, and in it sat A. G. Reynolds, who, though well, was hardly fit enough to compete—the first time for many years. One after another at half-minute intervals the men got away, each machine starting with the utmost promptitude—a splendid advertisement of the high pitch of excellence to which the motor cycle has attained. Gwynne went off with three lamps burning brightly. Captain Harkness, on one of the new Enfields, depended on an electric lamp. Many of the men used Crole-Rees's and Bell's route card holders, which they found of the greatest assistance. The ever-smart appearance of H. Roberts's P. and M. aroused much admiration, and the start of Captain Sir Robert Arbuthnot evoked an enthusiastic cheer. B. A. Hill's Kerry, the first machine to start with a free-engine device, also created a favourable impression, and thereafter cheer after cheer went up as each man left. At last the 103 motor cyclists were off and away on their long journey, and it remained but to follow them. It did not take long to get clear of London, as there was little traffic, but three miles from Highgate A. J. Stevens's 3 h.p. Wolf ran into a cart which pulled across the road suddenly, and was rather badly hurt.

London-Edinburgh Run.—

The List of Entrants.

MOTOR BICYCLES.

†E. B. Dickson (5 Indian)
†E. Gwynne (7 V.S.)
*F. Smith (5-6 Clyno)
H. M. Barton (3½ Humber)
Capt. P. J. Hackness (2¼ Enfield)
F. E. Wasling (2¼ Enfield)
P. Philipp (2¾ Douglas)
Mrs. Cooke (3½ Triumph)
C. C. Cooke (3½ Triumph)
P. Janson (3½ Bat)
*G. L. Fletcher (2¾ Douglas)
W. Hornsby (4 Cheviot-J.A.P.)
W. M. T. Atkinson (3½ Cheviot
*G. Wray (3½ Bradbury)
†J. S. Holroyd (1½ Moto-sacoche)
†R. G. Fray (1¼ Moto-sacoche)
G. Moore (3½ Triumph)
H. Gibson (3½ Bradbury)
J. Stout (3½ Triumph)
R. B. Timmis (8 Matchless)
C. B. Ferguson (3½ Triumph)
*A. T. Stanton (3½ Bradbury)
H. F. Inkson (3½ Excelsior)
†W. A. Sale (3½ Rex)
†F. Mussell (3½ Rex)
*R. Ellis (5 Rex)
†H. Roberts (3½ Phelon and Moore)
W. Pratt (3½ P. and M.)
P. Shaw (3½ Phelon and Moore)
*E. Kickham (2¾ Douglas)
H. G. Byng (3½ Phelon and Moore)
L. G. Byng (3½ Phelon and Moore)
R. M. Brice (3½ Brown)
S. W. Carty (3½ N.S.U.)
L. A. Baddeley (4½ Baddeley)
D. S. Baddeley (6 Baddeley)
*Eli Clark (2¾ Douglas)
H. W. Turner (3½ Triumph)
P. E. Tolfree (3½ Matchless)
F. C. Dee (7-9 V.S.)
*A. V. Deacock (2¾-3 Wanderer)
J. Godsall (6-7 Bat)
A. C. Robbins (3½ Humber)
W. O. Bentley (5 Indian)
*H. Karslake (4 Dreadnought)
F. A. Hardy (5 V.S.)
C. J. Janssen (2¾ Moto-Rêve)
R. C. Davis (6 Griffon)
*W. C. Wasley (2¾ Douglas)
J. Culley (3½ Triumph)
C. S. Perryman (3½ Ariel)
J. Stevens (2 Wolf)
*C. V. FitzHerbert (5 F.N.)
P. Stevens (3 Wolf)
A. J. Stevens (2 Wolf)
Dr. C. B. Moss-Blundell (3½ Triumph)
*F. C. North (3½ Ariel)
L. Vedy (3½ Phelon and Moore)
Dr. C. G. Watson (4½ F.N.)
P. R. Heighton (3½ Humber)
*C. B. Duberly (3½ Ariel)
G. E. Roberts (3½ Rex)
Dr. C. J. Stanley (5 Indian)
A. G. Peppercorn (3½ Triumph)
*G. Brough (3½ Brough)
T. S. V. Phillip (1½ Moto-sacoche)
*J. V. Robinson (2¾ Douglas)
Capt. Sir R. K. Arbuthnot, Bart., R.N. (3½ Triumph)
S. T. A. Oldfield (2¾ Douglas)
G. Lee Evans (5 Indian)
*S. Wright (3½ Humber)
F. H. Mullett (3½ Triumph)
C. Patteson (Moto-Rêve)
B. C. Howard (5 Vindec Special)
*W. L. Squire (3½ Quadrant)
†B. Allan-Hill (3½ Kerry-Abingdon)
†W. Cooper (3½ Bradbury)
*S. Webb (3½ Triumph)
P. Platt (3½ Bradbury)
G. W. Raper (6 N.S.U.)
*G. E. Purchase (3½ Triumph)
W. Price (3½ Rex)
H. E. Davison (3½ Rex)
†G. Jacobs (5 Vindec)
*A. Webster (2¾ Handy-Hobart)
W. E. Haines (3½ N.S.U.)
E. H. Chaytor (7 Lurquin et Coudert)
†A. J. Gilpin (2¼ Enfield)
*J. C. Collins (5-6 Roc)
E. R. Hibbert (5 Rex)
†G. Rex Mundy (3½ Triumph)
J. H. Slaughter (3½ Ariel)
*W. W. Douglas (2¾ Douglas)
F. Watson (3½ Triumph)
†A. L. Colyer (3½ Humber)
H. G. Bell (2¾ F.N.)
*F. Philip (3½ Scott, two-stroke)
J. Eastwood (3½ Bradbury)

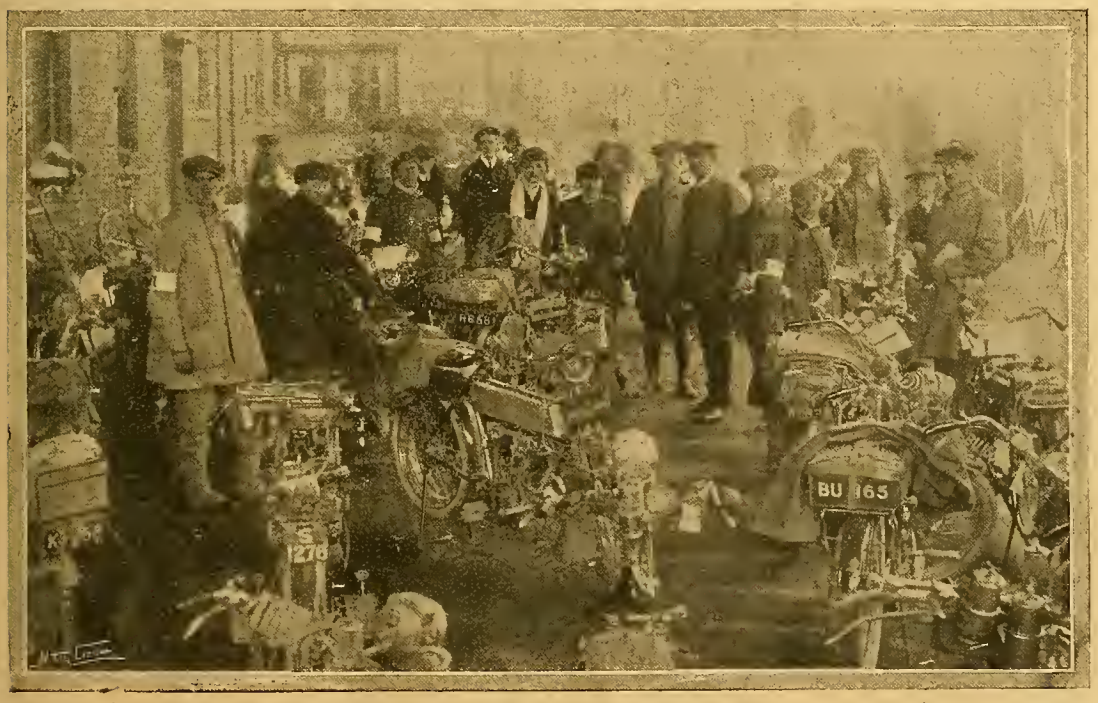
PASSENGER MOTOR CYCLES.

E. J. Pocock (6 Matchless)
†V. Olsson (J.A.P.)
†E. W. Brighten (8 Chater-Lea-J.A.P.)
†W. Lamm (5 V.S.)
J. T. Rankin (5 Rex)
†E. Frasetti (7 V.S.)
A. Mabon (3 Mabon)
W. Chater-Lea (7-9 Chater-Lea)
†J. Winslow (5 Rex)
†H. C. Griffin (3½ Premier)
W. Watson (9 Chater-Lea-J.A.P.)
A. H. D'Aeth (7 V.S.)
G. Rowden (7-8 Bat)
E. T. Newton-Clare (5-6 A.C. tricar)
A. R. Abbott (8 Matchless)
†H. Williamson (5 Rex Sidette)

With the exception of the A.C. tricar, all are sidecars.
*Entrants for M.C.C. Challenge Cup.
†Entrants for M.C.C. return journey medals

The Dusty Highway.

The first section is over good undulating roads, and as there had been no time for the men to extend, the dust was appallingly trying; consequently each tried to avoid the other's dust by getting ahead, and the nature of the country being what it is, the men had great difficulty in not arriving at Biggleswade too soon. Those entered for the Challenge Cup, who to win it have to maintain the utmost regularity in running, found the dust a terrible ordeal.



Scene in the yard of the Windmill Hotel, York, 194½ miles from Highgate. The competitors partook of a second breakfast at this point between the hours of 7.30 and 8.30 a.m.

London-Edinburgh Run.—

Just after entering the country beyond Hadley Common, over a mile of freshly-laid tar was struck, which the wheels of the machines threw in all directions.

It was a glorious night; the dry roads seemed to stream ahead in the light of the lamps; every doubtful corner had a man waving the direction with a lamp, and losing one's way was practically impossible. One or two of the sidecars were seen in trouble at an early stage, and here and there

E. W. Brighten's 8 h.p. Chater Lea-J.A.P. and sidecar on arriving at Edinburgh.

a man was seen in trouble with his lamps, but fortunately untoward incidents were few and far between. Everyone is always glad to get to Biggleswade, where he gets a warm welcome at the Swan Inn, and appetising refreshment at a moderate price. There is really no need to stop except to sign the check, but no one passes without enjoying a cup of hot coffee and a sandwich. Inside one could study at leisure the warm but weird head-dresses of some of the men; the appearance called for such remarks as Cook, Peary, and Shackleton, to be overheard.

Machine and man refreshed, they started to cover the next stage—at once the most trying and most easy. Trying, because most of it is accomplished in the dark; but what matter so long as the lamps burn well and the engine hums on its merry tune! Easy, because the roads are splendid and mostly dead flat; and even in busy Buckden all men, including policemen, are asleep. All along the route, however, in the "wee sma' hours" enthusiastic motor cyclists turned up at various places to see the riders pass.

At 2 a.m. the early glimmer of the dawn appeared, and towards 3 a.m., when the stars began to fade, our party looked vainly for the comet, but failed to find it.

It was a gloriously fine morning, and as it became light enough to see without the aid of lamps the men's spirits rose and the pace increased; the only danger was that of arriving too early at Grantham.

Incidents at Grantham.

Hatfield and Biggleswade safely negotiated, the next check was at Grantham, where an excellent and smartly-served breakfast was ready. It was all splendidly arranged; the men checked in at one entrance of the George Hotel yard, had breakfast, and checked out at the other entrance. In the yard Chater-Lea, with his 7-9 h.p. Chater-Lea and sidecar fitted with the new Chater-Lea twin m.o.v. engine, reported lamp and carburetter troubles; J. C. Collins (5-6 h.p. Roc) was trying hard to start his engine without success; P. Stevens (3 h.p. Wolf) reported inlet valve trouble in the first ten miles, but said his machine was going well afterwards. Near Stilton Cooper ran into a lightweight rider who was repairing a puncture in the dark with his lamp hidden, fell over, and knocked the man down. The victim was T. S. V. Phillip, who, Cooper states, had not pulled up near enough to the side of the road. The little Motosacoche had punctured and the rim was bent, and the result of the smash was to break the frame holding the engine and tank; the silencer was also knocked off. A. C. Robbins (3½ h.p. Humber) broke his lamp bracket at Tuxford and had a bad squeak in his engine all the way along. Near Bawtry, Janssen (2 h.p. Moto-Rêve) was seen in trouble with a puncture, and later adjusting his magneto. Close to Retford G. Jacobs (5 h.p. Vindec) was observed dismantling his carburetter.

Until the sun's power was felt it was very cold after leaving Grantham, but an excellent run was made over good roads which followed the old route to Ferrybridge. Near this point Olsson was seen in trouble, and right in the village Oldfield (2¾ Douglas) reported that something was wrong with his engine and that he was retiring.

Branching off to the right a good run was made over fair roads through Tadcaster to York, where the second breakfast was awaiting the competitors.

COMPETITORS LEAVING THE NEWCASTLE AND DISTRICT MOTOR CLUB'S PREMISES.

S. C. Howard (5 h.p. V.S.) and C. J. Janssen (2¾ h.p. Moto-Reve).

W. Cooper (3½ h.p. Bradbury) and S. C. Perryman (3½ h.p. Ariel)

London-Edinburgh Run.—

In the York Control.

The hotel is situated just below the picturesque Micklegate; the weather was now glorious and the sun very hot. In the hotel yard Captain Arbuthnot reported punctures; Jacobs stated that he had run out of petrol near Grantham and had had vave troubles; Dr. Moss Blundell related how he also had been a victim to the puncture fiend; A. H. D'Aeth (7 h.p. V.S. and sidecar) was another who ran out of petrol near Grantham; Janssen was also there and complained of not being very fit, as he had been ill the previous week. In York G. E. Purchase (3½ h.p. Triumph) had his magneto come adrift and could not start, so had to have a screw made to hold it down, and did not leave till one and a quarter hours behind time.

Thanks to the arrows erected by the M.C.C., the excellent organisation of the club, and the splendid behaviour of the police, the way out through York, and, in fact, all the towns, was easy enough to find. After the second breakfast, the going was excellent, but at one difficult corner, well signposted as usual, a careless competitor, reported to be an Excelsior rider, took it too fast, and landed in the hedge. Near York, Gibson reported punctures, and at breakfast was far from happy. In Easingwold Dr. C. G. Watson was hard at work pumping up his tyre, while at Northallerton Purchase was again working at his magneto.

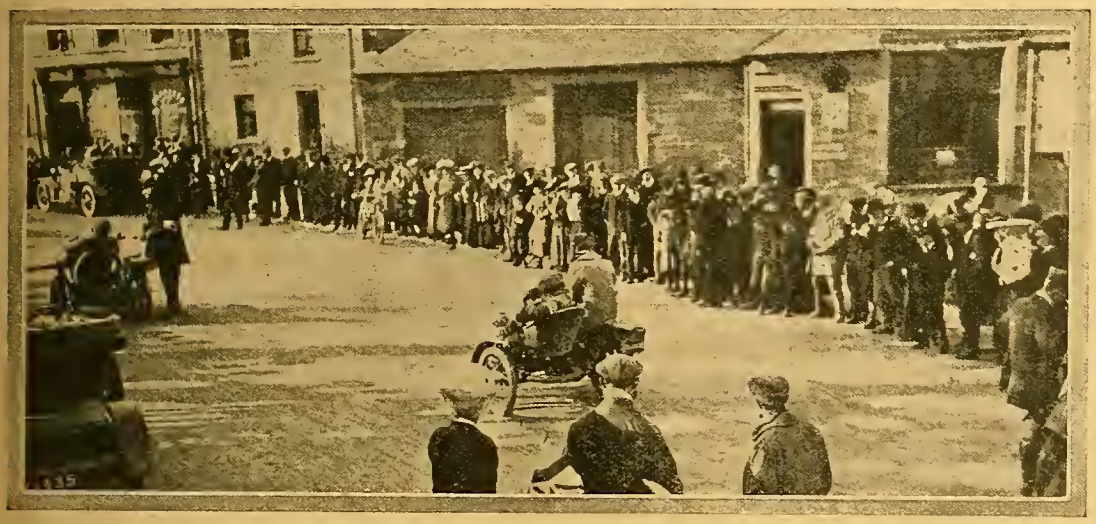
Picturesque Views.

Near Thirsk a fine view of the Hambleton Hills was obtained; far away on the right the white horse cut on the hillside could be plainly distinguished, and in the dim distance the precipitous road up Sutton Bank could be distinctly discerned. In the county of Durham the police behaved admirably; there was a constable stationed at every cross-road, and once we saw a man on a bicycle soundly rated for trying to evade the officer's signal to stop. All round the rather complicated route through Neville's Cross, avoiding Durham, arrows and policemen made losing one's way impossible. Once through the outskirts of Newcastle—always difficult to negotiate—the men by arrangement with the local club were allowed to cross the High Level Bridge without paying toll, and were directed by the police to Claremont Place, where the headquarters of the Newcastle and District M.C. are situated. Here the energetic officials worked things admirably, and to Messrs. W. H. Outwin, F. Mallett, E. Hawkins, B. Bradford, B. Wilson, E. Bates (secretary of the N.E.A.A.), and A. H. M. C. Bell the thanks of all the competitors are due. There is a garden in front of the club house, and here the men were able to store their machines and effect any necessary adjustments in peace and comfort. The arrangements were as good in the club house as they were outside, and even the comfort of the ladies was carefully studied. The luncheon was excellent and smartly served. Vedy, the ex-police superintendent, fine old sportsman that he is, had had trouble on the road—carburetter troubles and a loose magneto transmission cover. These, however, he rectified without much difficulty. Hardy was another of the many victims to punctures.

Over the Moors into Scotland.

After lunch a fine run followed over the moors into Scotland. The road was very rough in places, but all along granite and tar were ready to be laid down. This part of the route is quite new to Edinburgh competitors, and if it is repaired it will be the finest of all routes to the Scottish capital. In the Northumberland portion the gradients are easy, and over Carter Fell (summit 1,500 feet) the road is splendidly engineered, and here many of the competitors suffered with overheating, as the wind had been behind them ever since the start. On Carter Fell J. Godsall towed a lightweight rider up to the top, and as the latter kept his engine firing they climbed at a splendid speed. On the summit an S.A.C. sign marks that Scotland is reached. Thereafter the roads were good to Jedburgh, a pretty town with a fine old abbey, and here was the last check but one. But fifty-four miles remained to be covered, and this was through that beautiful country, the "braes and banks" of which the poets have immortalised. Several steep pitches and one long climb yet remained after leaving the Carfrae Mill Hotel, where R. B. Timmis was seen with tyre troubles, and then a splendid view was disclosed. Right below to the left lay "Auld Reekie" shrouded in mist and thus earning its ancient title. Straight ahead the Firth of Forth and the Fifeshire Hills could be seen, and even the Bass rock could be dimly made out. Numerous Edinburgh M.C.C. members met the men at this section of the route.

From that point right up to Liberton, the last check, the road was vile, and a terrible ordeal to face at the end of so long a journey. Thus terminated one of the most successful Edinburgh runs ever held. Weather, wind, and the roads as a whole had been all that could be desired. The organisation may be summed up in one word—perfect; more cannot be said, and we offer our heartiest congratulations to Messrs. Head, Candler, Jenkins, Gibbons, Bidlake, Bell, and their assistants.



Harold Williamson (5 h.p. Rex Sidette) passing through the lines of spectators at Jedburgh. Williamson's performance surely sets up a new record, for we actually saw this machine in course of construction two days before the start.

Reliability—Thy Name is Motor Cycle.

As may be expected, the proportion of successful competitors was enormous, due not only to the ideal weather conditions, but to the vast improvements made in the modern motor bicycle. The sidecar machines, however, were oftener in trouble than they should have been, and motor bicycles for passenger work require a trifle more attention at the hands of the designer. Serious troubles were practically non-existent, and the commonest cause of stoppages was tyre trouble. In addition to the incidents previously reported, S. C. Perryman (3½ h.p. Ariel) broke his exhaust lifter shortly after starting, and had to use his compression tap instead. Stanley Webb (3½ h.p. Triumph) suffered

M.C.C. London-Edinburgh Run.—

delay through punctures near Darlington, and was so late at the cup check that he resolved to relinquish the idea of competing for that much-coveted trophy. Karslake was troubled with overheating on Carter Fell. Near Jedburgh Williamson, who was driving a smart Rex sidette, the sidecar wheel of which steers in conjunction with the bicycle front wheel, was ditched by two cars, but, fortunately, without suffering serious damage. Of the twelve retirements, Oldfield (2¾ h.p. Douglas) had a seized engine, Timmis (3 h.p. Matchless) suffered serious tyre troubles, Stevens (3 h.p. Wolf) had an accident, Dr. Watson (5-6 h.p. F.N.) had a broken cylinder at Newcastle, and Inkson (3½ h.p. Excelsior) collided with the hedge near Northallerton. In addition to these, J. V. Robinson (2¾ h.p. Douglas), J. Culley (3½ h.p. Triumph), H. E. Davison (3½ h.p. Rex), W. E. Haines (3½ h.p. N.S.U.), E. H. Chayton (7 h.p. Lurquin et Coudert), J. C. Collins (5-6 h.p. Roc, apparently ignition trouble), and C. Patteson (2¾ h.p. Moto-Rêve) must be added to the list of retirements, while the four users of sidecars who retired are J. T. Rankin (5 h.p. Rex and sidecar), A. Mabon (3 h.p. Mabon and sidecar), G. Rowden (7-8 h.p. Bat and sidecar), and A. R. Abbott (8 h.p. Matchless and sidecar). Four sidecars out of fifteen failed to get through, and out of one hundred and three motor cyclists who started only sixteen failed to finish. Subject to confirmation by the committee, seventy-five motor bicycle riders will receive gold medals, and one will receive a silver medal. Of the sidecar riders, eight will receive gold medals, one a silver, and the other a bronze.

The Return Journey Competition.

The return journey for the M.C.C. cup and special medals was commenced at 12.30 a.m. on Monday.

Wasley ran over a cat outside Edinburgh and smashed his lamps, started again late, but stopped at Newcastle outside time. A thick mist hung over Lammermuir, where Gibson led the competitors. The roads were wet and greasy till about 10 a.m. It is noteworthy that four Bradburys started the return run and all finished, despite the fact that Gibson suffered three punctures and other minor troubles. A. V. Deacock had trouble with a butt-ended inner tube at Otterburn. It took twenty-five minutes to take off the cover. Karslake experienced a bad side-slip before Jedburgh, and his two-speed gear seized just before the finish. Duberly was knocked over by a trap at the finish, but was apparently unhurt. Olsson had tyre troubles at Biggleswade, otherwise he did not touch his machine the whole way. Brighte burst a tyre north of Potters Bar. A thick mist at th finish greatly inconvenienced the later arrivals.

The following finished the return journey:

MOTOR BICYCLES.

†E. B. Dickson (5 Indian)
*F. Smith (5 Clyno)
*H. Gibson (3½ Bradbury)
*G. L. Fletcher (2¾ Douglas)
†W. Cooper (3½ Bradbury)
*S. Wright (3½ Humber)
*A. V. Deacock (2½ Wanderer)
*A. T. Stanton (3½ Bradbury)
*H. Karslake (4 Dreadnought)
*C. B. Duberly (3½ Ariel)
S. T. A. Oldfield (2¾ Douglas)
*A. Webster (2¾ Handy Hobart)
†E. Gwynne (7 V.S.)
*G. Wray (3½ Bradbury)
*P. Phillip (2¾ Douglas)
*R. Ellis (5 Rex)
*E. Kickham (2¾ Douglas)
*Eli Clark (2¾ Douglas)
†B. Allan Hill (3½ Kerry Abingdon)
†G. Jacobs (5 V.S.)
*F. C. North (3½ Ariel)
*G. Brough (3½ Brough)
L. G. Byng (3½ P. and M
†A. J. Gilpin (2¼ Enfield)

MOTOR BICYCLES AND SIDECARS.

†E. Frasetti (7 V.S.)
†V. Olsson (J.A.P.)
†E. W. Brighten (8 Chater Lea-J.A.P.)

TOURIST TROPHY RACE.

Special Wires giving Lap Positions.

By arrangement with *The Motor Cycle*, the following firms will exhibit telegrams in their windows on the day of the T.T. Race giving the progress of the race lap by lap:

E.C. District.—A. W. Gamage, Ltd., Holborn.
Richford and Co., 153, Fleet Street.
Hunt's Stores, Newgate Street.
Benetfink's, Cheapside.
Bancroftian Co., Bishopsgate Street Within.
W.C.—Service Co., Ltd., 292, High Holborn.
Taylor and Co., 21a, Store Street, Tottenham Court Road
W.—Maude's Motor Mart, 136, Great Portland Street.
S.W.—Harrod's Stores, Brompton Road.

The telegrams will also be displayed at leading provincial centres. See next week's issue.

The control at Liberton, 2 miles from Edinburgh, where the riders checked before running into the city. The actual finishing point was the Royal Hotel.

SPEED TRIALS AT FILEY.

The speed trials on Filey Sands promoted by the Scarborough Motor Cycling Club on Whit-Monday were considerably marred owing to a dense fog, which prevented a start being made until nearly 5 p.m. The fog kept the sands very wet, and one motor cyclist unfortunately skidded and broke the wire of the timing apparatus. Although this was repaired, the weather conditions rendered the apparatus useless, and the kilometre electrically timed race was reduced to a furlong race, hand signalled by means of flags. The damp atmosphere caused belts to slip rather badly.

Results.

Class 1.—G. Glover 1st, E. Dent and Mason tied for second place.

Class 2.—C. H Pugh, 1st; H. A. Hands, 2nd.

Class 3.—C. A. Bedford, 1st; A. B. Hughes, 2nd; J. E. Trufitt, 3rd; J. A. Tindall, 4th; J. Whitefield, 5th; H. A. Hands, 6th.

Class 4.—C. L. Bedford, 1st; S. Grange, 2nd; J. A. Everingham, 3rd; C. T. Summonite, 4th.

Class 5.—J. F. P. Johnstone, 1st; S. Grange, 2nd; J. O. Truman, 3rd; R. Ellis, 4th; J Wilks, 5th.

Class 6 (for T.T. machines).—F. P. Johnston, 1st; R. M. Knowles, 2nd; C. G. Bedford, 3rd; S. Grange, 4th; J. E. Truman, 5th; J. Wilks, 6th.

The special trophy for fastest time was won by C. L. Bedford in 9⅘s.; F. P. Johnston was second, time, 11⅗s.

THURSDAY NEXT.
THE MOTOR CYCLE SPRING ISSUE and T.T. NUMBER.

Filey Speed Trials. Starting for the Flying Kilometre.

CLUB NEWS.

Herts County A.C.

The open motor cycle hill-climb will take place at Aston Hill on June 11th. The entries number at present eighty-three. Entry forms and all particulars may be had from the hon. sec., Mr. C. C. Cooke, Rose Cottage, North Mimms, Hatfield, Herts.

North West London M.C.C.

The postponed Coventry and back twelve hours' reliability trial will be held on May 28th. Competitors will be allotted the same numbers as before, so that their schedule times will not be altered. Fresh entries will be received by Mr. G. Rowden, 40, Frognal, up till Monday next.

Leeds M.C.C.

Members are reminded of the Kelly Cup Competition which takes place next week-end over an ideal non-stop course. Entries at a special fee will be accepted by the trials hon. secs. up to first post on Saturday next, and competitors are permitted to name their own choice in the matter of average speed to be adhered to. Motor cycles will be despatched in pairs at minute intervals, passenger motor cycles will go singly at similar intervals, and cars last. Thirty seconds will be allowed either side of schedule time without loss of marks.

Southern M.C.

The members of the above club had a very enjoyable time at Lulworth Cove during Whitsun, over twenty members and friends taking part in the run down. Next Saturday there is to be a run to The Crossways at Reigate for tea. Members may now send in their entries for the Triumph Cup competition (for motor cycles only) to Blandford and back on June 5th. Gold medals will be presented to all competitors losing not more than ten points.

Bradford M.C.C.

The annual reliability trials for the N.S.U. Cup were run on the 9th inst. The course was from Bradford, by Skipton, Settle, Kirkby Lonsdale, Kendal, Windermere, to Keswick, where ninety minutes were allowed for dinner at the Keswick Hotel. On the outward journey snow fell heavily approaching Skipton and continued until within a few miles of Settle; again on climbing Dunmail Raise another snowstorm was experienced. The result was as follows:

		Points.
1.	T. Bullus (3½ P. and M.), cup and gold medal	0
2.	C. Sidney (3½ P. and M.), F. Scriven (3½ Rex), E. Holden (3½ P. and M.), silver medals	1
3.	N. Longfield (3½ Triumph)	1¾

J. A. Tindall (Harrogate) starting in the Filey Speed Trials. Note the wet state of the sands. The thick mist prevailing rendered the finishing point obscure.

Club News.—

M.C.U.I. (Ulster Centre.)

A hill-climbing competition under the auspices of this centre took place at Magheramorne, Co. Antrim, on Saturday last. The handicap was based on the bore and stroke of

Ulster Centre M.C.U.I. Hill-climb at Magheramorne on Saturday last. A competitor taking one of the bad corners in good style.

engine, weight of rider and machine, with a penalty for previous wins. Owing to the Whitsuntide holidays the entry was not so large as usual, but the competition proved most successful, and some excellent climbs were made. The surface of the hill was in splendid order, and a couple of bends required great skill to negotiate at top speed. The programme consisted of two events, viz., a class confined to riders who had never won a first prize in any hill-climb, and an open class. In the novice class, L. MacLaine, on a 3½ h.p. Triumph (8s.), was declared the winner, and he actually did the fastest time. Details:

CLASS A. For riders who had never won a hill-climb.

		Gross time. secs.	Handi-cap. secs.	Nett time. secs.
1.	L. MacLaine (3½ Triumph) ...	0 55⅗	... 8	... 47⅗
2.	B. D. Capper (3½ Triumph) ...	0 56⅘	... 8	... 48⅘
3.	J. E. Stevenson (3½ Triumph) ...	0 59⅘	... 9	... 50⅘
4.	W. J. Andrews (5 Rex) ...	0 57	... scr.	... 57
5.	M. J. Lindsay (3½ Rex) ...	1 2⅖	... 4	... 58⅖

CLASS B. Open.

1.	Cecil A. Rea (3½ Triumph) ...	0 59⅖	... 7	... 52⅖
2.	J. Stewart (3½ Triumph) ...	0 59⅗	... 5	... 54⅗
3.	M. J. Lindsay (3½ Rex) ...	1 0⅗	... 4	... 56⅗
4.	C. E. Murphy (3½ Triumph) ...	0 56⅘	... scr.	... 56⅘
5.	B. J. McAllister (3½ Premier) ...	1 0⅕	... 1	... 59⅕
6.	W. J. Andrews (5 Rex) ...	0 59⅗	... scr	... 59⅗

Northern League.

A meeting has been called at the Royal Station Hotel, York, for Saturday, May 28th, at 5.30 p.m., to frame the rules and constitution of the league and discuss any other business. Club officials in the North who have not been notified owing to their addresses not being available to the hon. sec. of the league, will kindly do their best to attend the meeting, which will be of an important nature.

Sutton Coldfield A.C.

In connection with the hill-climb at Coalport, a mix-up occurred in the times in Class III. for T.T. machines as published on page 427 of our last issue, although the formula positions were in order. The correct results are as under:

Position on formula.		Time. m.	s.
1.	Howard Smith (3½ T.T. Triumph) ...	1	12⅕
2.	J. L. Norton (3½ Norton)	1	30
3.	W. D. South (5 Indian)	1	22⅖
4.	James St. John (3½ Triumph) ...	1	48
5.	Rem Fowler (5 Rex Speed King) ...	1	17⅗

Dublin and District M.C.C.

A reliability trial from Dublin to Lisburn and back for the White Cup was held on Whit-Monday. Owing to the exceedingly wet weather on the previous day, only seven started: Doleman (2¾ h.p. Douglas), Valleyar (2¾ h.p. Douglas), C. E. Murphy (Triumph), Healey (Rex), Curtis (Triumph), Walker (Rex), and Woods (Bradbury). One of the Douglas riders retired fifty miles from the finish, and all the others completed the course of 108 miles. The result will depend on secret controls, as most of the finishers completed the journey in schedule time. The weather kept fine, but the roads were muddy from the previous day's rain.

Westmorland M.C.C.

A very successful hill-climb was held by the above club on Scott's Grinns, near Sedbergh, the length of the climb being a mile. The A.C.U. formula was used, and the results were:

	Machine and rider.	Fig. of merit.
1.	R. Hutchinson (3½ h.p. Bradbury) ...	139.7
2.	Harvey Goodwin (3½ h.p. Rex)	146.2
3.	W. Westwood (3½ h.p. Triumph)	146.3
4.	B. Jeffery (3½ h.p. Triumph)	150.3
5.	H. Harrison (3½ h.p. Bradbury)	154.5
6.	T. Armstrong (3½ h.p. Triumph)	160.6

The fastest time was made by W. Westwood—1m. 39s.

Surrey M.C.C.

The twelve hours' reliability competition for the McNab Cup will be held from Guildford to Lyme Regis and back on Wednesday, June 1st. The trial comprises some very hilly country, particularly between Dorchester and Lyme Regis, and should provide a good test of hill-climbing and reliability.

Metropolitan Centre of the A.C.U.

At the monthly meeting of the above centre it was decided to organise two penalty runs—one in the south district, the other in the north of London. A sub-committee was formed to arrange details.

The annual Midland Meet of Motor Cyclists at Stratford-on-Avon on Whit-Monday, which was well attended.

Club News.—

South Devon M.C.C. (Plymouth).

A club has been formed at Plymouth which bears the name of the South Devon M.C.C. The membership is at present fifteen, and the secretary is Mr. R. Birkett, 10, Bedford Terrace, Plymouth.

Reading and District M.C.C.

The above organisation has been reformed, and everything points to a successful year. The annual subscription is 5s. The affiliation question will be discussed at a future meeting. The captain is J. R. Bedford (founder and for five and a half years hon. secretary and treasurer of the Birmingham M.C.C.) The hon. secretary is F. Deacon, 4, Fatherson Road, Reading. The next run is on the 21st inst. to Eversley and Finchampstead; 22nd inst. to Marlow and Dashwood Hill, at 10 a.m. A hill-climb, gymkhana, and paperchase are on the June programme.

A Club for Stockton-on-Tees.

A few motor cycle riders living in the district round Stockton-on-Tees are anxious to form a motor cycle club. Those who are interested should communicate with Mr. Charles S. Watson, Kelvin Grove, Norton-on-Tees.

Perth and District M.C.C.

A limit speed hill-climb was carried through by this club on Lochton House Brae, near Abernyte. The hill, which is about half a mile in length, is not particularly steep. Speeds, which were balloted for, ranged between 12 and 20 m.p.h. The winner, W. A. Hart, on a 3½ h.p. 1910 Triumph, averaged 19½ m.p.h., his balloted speed being 20 m.p.h. The next in order, D. Cairnie, on a similar machine, had the rather harder task to perform of climbing the hill at 12 m.p.h. His speed worked out at a shade over 14 m.p.h.

Amman Valley and District M.C.

At a meeting of motorists in the district of Garmant, Carmarthenshire, it was decided to form a club to be known as above. Rules are now being formulated, and a further meeting is to be held shortly.

Bolton and District M.C.C.

The postponed speed-judging competition to Blackpool (distance 37 miles) for the club gold medal was won by B. D. Leadbetter (3½ h.p. Triumph). The roads were in a very bad state.

A hill-climbing competition will be held on Rivington on Saturday next, 21st inst. Meet at Pack Horse, Bradshawgate, at 1.45 prompt. There will be three classes: 1st, single touring machines; 2nd, twin touring machines; 3rd, single racing machines. The racing class is open for the other two classes. The two first classes will be run on formula. Every machine entered in classes 1 and 2 must be in full touring trim, fitted with horn, tool bag, efficient metal mudguards and silencer, and to be absolutely standard in every respect. The weight of rider in the racing class must not be below the minimum weight of 154 lbs. The racing class will be awarded on time results only. Tourist Trophy mounts must be entered in the racing class. Competitors can ride any machine owned by a club member.

A competitor in the Cambridgeshire M.C.C. Petrol Consumption Test being served with his allowance of fuel. This competition has been declared void, and will be re-run.

Manchester and Liverpool Motor Club Members' Sweepstake Hill-climb near Llangollen. The winner, F. W. Sixsmith (3½ h.p. T.T. Triumph) starting.

Coventry and Warwickshire M.C.

At a well-attended committee meeting of the above club, held on Wednesday last week, the route for the twelve hours' run on June 4th was amended to include the mountain ride from Capel Curig to the summit of the Llanberis Pass and on to Carnarvon for tea. The finishing point will be the George Hotel, Bangor. Badges will be presented to all who complete the run within scheduled time, and special prizes (one for cars and one for motor cycles) to the competitor finishing nearest to twelve hours, provided he does not exceed that time. Competitors who are more than twenty minutes ahead of their correct time at any point will not participate in the above award.

Warrington and District M.C.C.

The above club held a flexibility hill-climb on the 7th inst., the winner to be the one showing the biggest percentage of difference between the fastest and slowest time, clutches and two-speed gears barred. The event was a great success. Times for the first three were as follows:

FASTEST.

H. B. Jackson (3½ h.p. Matchless)	$29\frac{3}{5}$s.
J. L. Oliver (6 h.p. Matchless)	$34\frac{3}{5}$s.
A. V. Baxter (5 h.p. Vindec)	$34\frac{3}{5}$s.

SLOWEST.

J. L. Oliver (6 h.p. Matchless)	$64\frac{1}{5}$s.
H. B. Jackson (3½ h.p. Matchless)	$60\frac{4}{5}$s.
A. V. Baxter (5 h.p. Vindec)	55s.

RESULT.

1.	J. L. Oliver	Difference $31\frac{4}{5}$s.
2.	H. B. Jackson	.. $31\frac{1}{5}$s.
3.	A. V. Baxter	.. $20\frac{2}{5}$s.

The Easter reliability run has been declared a draw between C. E. Kettle (3¾ h.p. Premier) and W. Sutton (3½ h.p. Rex).

Club News.—

Oxford M.C.C.

The results of the members' hill-climbing competition on Irondown, Deddington, on Saturday, the 7th inst., are as under:

CLASS I.—Single-cylinder machines.

Rider and machine.	Cubical capacity.	Time in secs.	Position on formula.	Marks for DuCros Cup.
H. G. Hill (3½ Bradbury) ...	517	39	1	24
F. G. Alden (3½ Triumph) ...	476	41	2	23
W. A. Mathews (3½ Triumph)	499	44⅕	3	22
J. A. Betteridge (3½ Triumph)	476	45	4	21
H. Braithwaite (3½ Triumph) ...	454	50	5	20
W. H. Wakefield (3½ Triumph)	499	47	6	19
J. Aldworth (3½ Kerry) ...	476	56⅖	7	18

AWARDS.—Cup for best placing on formula, won by H. G. Hill (3½ Bradbury). Medal for best performance by standard touring machine, H. G. Hill (3½ Bradbury).

CLASS II.—Multi-cylinder machines.

R. A. Bishop (5 Indian) ...	638	38⅖	1	24
A. F. M. Stevenson (5-6 Clyno)	744	36⅘	2	23
H. E. Cohen (8 Matchless) ...	964	33⅗	3	22
E. Packer (8 Matchless) ...	964	37	4	21
G. F. Cooper (5 V.S.) ...	662	46⅕	5	20
W. H. Grand (5 Rex) ...	662	55	6	19

AWARDS.—As for Class I., both won by R. A. Bishop (5 Indian).

Judges, Dr. Turrell and Mr. Boissier; timekeeper, Mr H. A. J. Packford; starter, Mr. Vernon Whitehead.

NEXT THURSDAY'S TOURIST TROPHY RACE.

COMPLETE LIST OF ENTRIES.

THE General Committee of the Auto Cycle Union at a meeting on Thursday, the 12th inst., decided to accept the whole of the entries as below, thus overruling the suggestion of the Competitions Committee to reduce the number to seventy.

Rider and machine.	No. of cyls.	Bore mm.	Stroke mm.	Capacity c.c
H. A. Collier (5 Matchless) ...	2	85.5	58	666
C. E. Bennett (5 Indian) ...	2	71.5	82.5	662.5
G. Lee Evans (5 Indian) ...	2	71.5	82.5	662.5
D. R. Clarke (5 Indian) ...	2	71.5	82.5	662.5
*A. E. Woodman (5 Indian)	2	71.5	82.5	662.5
*W. O. Bentley (5 Indian)	2	71.5	82.5	662.5
J. Marshall (3½ Triumph)	1	85	88	499
W. F. Newsome (3½ Triumph)	1	85	88	499
W. Creyton (3½ Triumph)	1	85	88	499
*C. B. Franklin (5 Indian)	2	71.5	82	662.5
*Noel E. Drury (5 J.A.P.) ...	2	85.5	58	666
H. V. Colver (5 Matchless)	2	85.5	58	666
C. R. Collier (5 Matchless)	2	85.5	58	666
T. Silver (3½ Quadrant) ...	1	82	90	475
O. C. Godfrey (3½ Rex) ...	1	84.5	89	499
A. H. Alexander (3½ Rex)	1	84.5	89	499
F. A. Applebee (4 Rex) ...	2	77.5	70	660
A. J. Sproston (4 Rex) ...	2	77.5	70	660
Eric S. Myers (5 Scott) ...	2	2 7/8"	3"	640
*W. H. Bashall (5 Bat) ...	2	85.5	58	666
*J. T. Bashall (5 Bat) ...	2	85.5	58	666
*H. H. Bowen (5 Bat) ...	2	85.5	58	666
J. L. Norton (3½ Norton) ...	1	82	94	496
*S. A. M. Witham (5 Bat) ...	2	66	73.5	666
F. A. McNab (3½ Trump-J.A.P.) ...	1	85	85	482
*J. R. Alexander, jun. (5 Indian) ...	2	71.5	82.5	662.5
H. Reed (5 Dot)	2	85.5	58	666
*E. J. Stevens (3½ Dot)	1	85	88	499
*P. Butler (5 Dot)	2	85.5	58	666
F. Philipp (5 Scott)	2	2 7/8"	3"	640
*A. J. Moorhouse (5 Indian) ...	2	71.5	82.5	662.5
P. Brewster (3½ Norton)	1	82.25	93	495
*H. Lister Cooper (3½ Triumph) ...	1	84	86	476
*H. Rem Fowler (4 Rex)	2	77.5	70	660
*J. Scriven (4 Rex)	2	77.5	70	660
*J. W. Adamson (3½ Triumph) ...	1	85	88	499
*Quentin Smith (3½ Triumph) ...	1	85	88	499
*C. W. Murphy (3½ Triumph) ...	1	85	88	499
*D. C. Bolton (4 Rex)	2	77.5	70	666
J. H. R. Loxham (3½ Moveo) ...	1	85	85	477
H. Houlding (5 Moveo)	2	76	73.5	666
*Howard Smith (3½ Triumph ...	1	85	88	499
J. F. Crundall (3½ Humber) ...	1	85	88	499
F. G. Edmonds (3½ Humber) ...	1	85	88	499
Bert Yates (3½ Humber)	1	85	88	499
*J. Baxter (4 Rex)	2	77.5	70	660
F. Mackay (4 Rex)	2	77.5	70	660
*W. E. Grange (3½ Rex)	1	84.5	89	499
*F. C. Bagshaw (4 Rex)	2	77.5	70	660
*A. R. Abbott, jun. (3½ Rex) ...	1	84.5	89	499
J. Gibson (3½ Trump-J.A.P.) ...	1	85	85	482.5
H. Storey (3½ Moveo)	1	85	85	482.5
F. Savory (3½ Premier)	1	85	88	499
G. E. Stanley (5 Premier)	1	85	88	499
B. Jones (5 Premier)	2	71	84	665
F. W. Barnes (3½ Zenith Gradua)	1	85	85	482
P. Weatherilt (3½ Zenith Gradua)	1	85	85	482
*J. R. Woodward (4 Rex)	2	77.5	70	660
J. Slaughter (3½ Ariel	1	85	85	482.5
—— (3½ Ariel)	1	85	85	482.5
*W. G. McMinnies (3½ Triumph) ...	1	85	88	499
F. W. Dayrell (5 Bat)	2	85.5	58	666
H. J. Scale, jun. (3½ Scale-J.A.P.)	1	85	85	482
F. W. Chase (3½ Centaur) ...	1	85	87	494
S. C. Perryman (5 Blumfield) ...	2	66.9	95	668
N. F. Holder (5 Blumfield) ...	2	66.9	95	668
F. Turvey, jun. (3½ Humber) ...	1	85	88	499
H. Martin (5 A.S.L.)	2	85.5	58	666
R. Pimm (3½ A.S.L.)	1	85	85	482.5
S. Findlater (5 A.S.L.)	2	85.5	58	666
*F. C. Wood (4 Rex)...	1	77.5	88	499
*E. F. Baxter (3½ N.S.U.)	1	85	88	499
W. Heaton (3½ N.S.U.)	1	85	75	662
A. Oberländer (5 N.S.U.) ...	2	75	75	662
—— (5 N.S.U.)	2	75	70	660
J. P. Scott (3½ Rex)	1	84.5	89	499
R. Lord (3½ Rex)	1	84.5	89	499
F. W. Applebee (3½ Centaur) ...	1	85	87	494
*Robert Ellis (3½ Rex)	1	84.5	89	499
*W. Shaw (3½ Premier)	1	85	88	499
D. M. Brown (3½ Humber) ...	1	85	88	499
Sam Wright (3½ Humber)	1	85	88	499
*J. Lang (5 Tee Bee)	2	85.5	58	666

*Denotes private owner.

A special meeting of the A.C.U. Competitions Committee was held on Thursday night last, at which it was decided that, in view of the decision come to that evening to take steps to bank the dangerous corner at Ballacraine, the whole of the eighty-three entrants will be started in batches of three at thirty second intervals.

In accordance with the desire specially expressed by the trade that a judge officiating in an open competition should be an entirely disinterested person unconnected in any way with the motor cycle industry, the A.C.U. list of judges has been amended. Those invited to officiate are the following: Messrs. J. W. Orde, R. Todd, H. P. E. Harding, A. G Reynolds, and J. Lyons-Sampson.

On the morning of May 20th no practising on the Isle of Man course will be permitted.

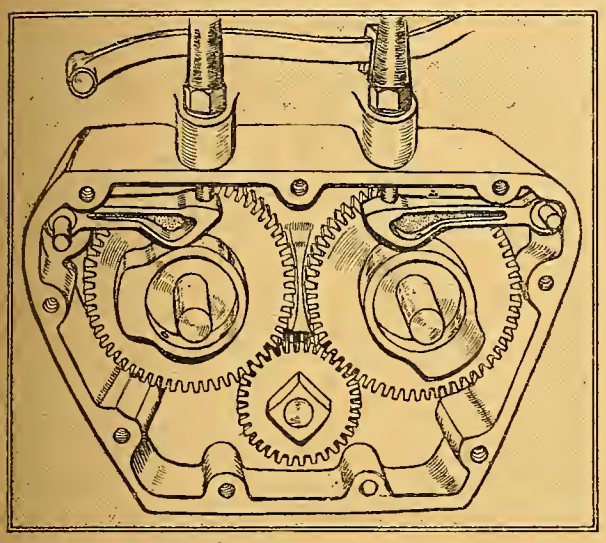
A meeting of the marshals, timekeepers, and all concerned with the organisation of the race will be held at the Sefton Hotel, Douglas, at 8 o'clock on the evening of May 25th. The clerk of the course, who will be responsible for the arrangements, will be Mr. J. R. Nisbet, while the chief marshals will be Messrs. C. E. Rackham, A. Ross, A. J. Macdonald, and R. D. F. Paul.

TOURIST TROPHY MODELS.

THE SINGLE-CYLINDER NORTON.

THE Norton Manufacturing Co. will have two machines in this year's Tourist Trophy Race, both single-cylinder 3½ h.p. The machines are practically standard models, except that they are fitted with a rather shorter wheelbase than usual.

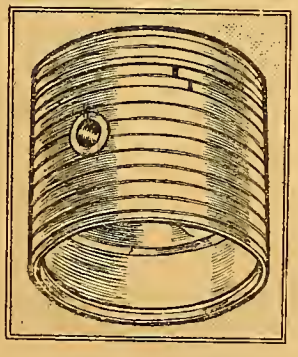
One of the first points which strike one upon inspecting the machine is the design of the tank; compared with the ordinary tank it is of quite different shape, and has a considerably larger capacity. The filling cap is of large diameter, and Mr. Norton claims to be able to fill the petrol tank in no more than five seconds. A separate compartment in front is devoted to lubricating oil, which is supplied to the engine in a novel and ingenious manner that is the subject of a patent.



The timing gear of the 3½ h.p. T.T. Norton. Note the special exhaust valve lifter.

Forced Feed Lubrication.

The ordinary type of hand-operated pump is used, but the plunger is loaded with a spring behind it. At the bottom end of the pump, which projects through the tank, is an ordinary tap, and also a needle valve which can be adjusted very finely. When the plunger is drawn up a charge of oil fills the pump barrel, and under the action of the spring plunger this is delivered to the engine through the needle valve, which can be adjusted to give any desired flow. The plunger rod is calibrated, so that the amount of oil fed to the engine can be ascertained by observing the rate of descent of the rod. This is one of the simplest and most practical lubricating devices we have seen for some time, and we shall not be surprised if it comes into general use

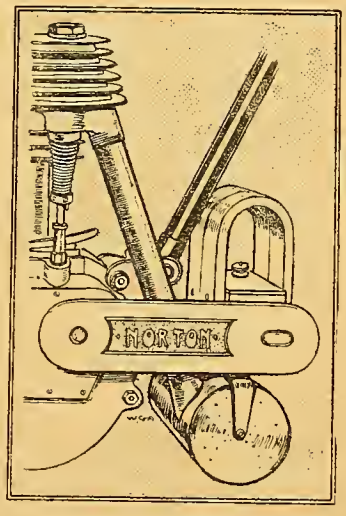


The piston showing hollow gudgeon pin and the oil grooves.

The only part of the engine that has been specially lightened is the connecting rod, which has been extensively drilled. The piston, a sketch of which we give, is notable for the large number of oil grooves with which it has been provided. These are no less than ten in number, two of which are on the two broad piston rings. The last named have a rebate joint.

Petrol and oil tank with large filler caps and forced feed lubricating arrangement.

The timing gear used on the 3½ h.p. T.T. Norton is worthy of special note, by reason of its simplicity, getatableness, and remarkable strength in all parts. The gear wheels, cams, and rockers, are all made of Ubas steel. The cam wheels are drilled through, so that lubricating oil which collects in the interior of the wheel finds its way, by centrifugal force, to the face of the wheel just in front of the cam, so that it is always furnished with lubrication just where it requires it most. The magneto is driven by an enclosed chain, which passes over a sprocket wheel carried by an extension of the exhaust cam wheel shaft.



3½ h.p. T.T. Norton engine, showing straight exhaust pipe entering silencer tangentially.

Specially Arranged Exhaust Pipe.

The position of the magneto is illustrated in one of the sketches, which also shows the long straight exhaust pipe which enters the silencer tangentially, so that the exhaust gases are not obliged to follow any sharp bends, but whirl round the inside of the silencer without meeting any obstruction. In this way they are rapidly cooled, and the result is a free and quiet exhaust.

A special feature of the engine is the size of the flywheels, which contributes in a large measure to the smooth running of the engine and its extreme flexibility. In fact, we know of few engines which will run at such a low speed and continue to fire regularly without snatching as the Norton. The makers' address is Deritend Bridge, Floodgate Street, Birmingham.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

Fitting Stronger Tyres.

I have a 6 h.p. tricar (weight unladen, 600 lbs.), and, as is generally the case with tricars, I have had a lot of trouble with the back tyre. The covers I have been using are 26 × 2½, and also steel-studded non-skid covers. The covers generally burst after about 400 miles running, either at the bead or else right across the tread. They appear simply to be unable to stand the work. I have been thinking of fitting a 650 × 65 extra heavy voiturette cover. (1.) Would such a cover fit my present rim, or would a new rim be necessary? (2.) Will Michelin and Kempshall covers fit the same rim if I fit a new rim?—R. A.

We think you are very wise to change your cover for a voiturette one. 2½in. motor cycle tyres are barely strong enough for 6 h.p. tricars. It is better to over than to under-tyre a vehicle. There should be no difficulty about it fitting the rim. It would, however, be advisable to write and ask the makers if there would be any difficulty when giving your order.

Storing a Motor Cycle.

Being out of England for three months, my machine is left without attention. I shall keep in a cool, dry, darkened place. Tyres fully inflated, cycle parts vaselined, hubs, bearings, and crank case swilled with paraffin. Please say if advisable (1) to oil crank case; (2) if so, to fill or only as under working conditions; (3) to fill magneto oil wells; (4) to paint cylinder against rust (otherwise than with enamel); (5) to paint tyres with one of the preparations sold?—T. L.

After you have washed out the crank case with paraffin, it would be advisable to put in the requisite quantity of oil. Certainly oil the magneto after washing out the oil wells, and paint the cylinder with Radiolene (sold by Messrs. Bowen and Odery, 62, New Cross Road, London, S.E.) It would also be a rather good plan to suspend the machine clear of the ground, so that the tyres do not continually rest on one place. A preparation on the tyres would be advisable, or they should be sponged with water occasionally.

Illuminating Tricar Numbers.

Please tell me the correct way of lighting a tricar. At the present time the front number is on the right side of body, just behind the lamp bracket. If this is sufficient, I do not see how it was lighted at night.—B. H. W.

If the tricar is registered as a car, it must be lighted as a car by means of a lamp showing a red light behind, and also lighting the rear number. If it is registered as a motor cycle, you may either fit a number plate in front of the front lamp, which will illuminate both sides, or you may light it as a car. The latter way is by far the best, as it also acts as a warning to faster vehicles.

Carburetter Adjustment. Timing of Spark.

(1.) My engine is 76×76 mm., compression good, gear 5½ to 1, does not overheat, but will take no extra air (Amac carburetter), and opening throttle more than half-way has no effect. It runs steadily up to about 15 or 16 m.p.h., but I cannot get above this speed. What can I do to improve it? A.I.V. opening ⅛in., and petrol level just at top of jet. What size should the exhaust pipe be for the above engine? Mine is ⅞in. internal diameter. Is this large enough? (2.) Ignition is coil and accumulator, and with spark fully advanced fires exactly at the top of the compression stroke. When retarded, the piston is ⅝in. down firing stroke. Is not this rather late? (3.) The machine starts easily, but is sometimes inclined to run in jerks. Would the fact that the carburetter is close to the cylinder and no induction pipe worth mentioning account for this?—B. M. W.

(1.) Probably if you fit the carburetter with a slightly larger jet the engine will run more steadily, and will take full opening of the throttle. If, however, the petrol consumption is already as high as it should be—say, ninety miles to the gallon—a smaller sized choke tube or air funnel would have the same effect, and enable you to admit some extra air when travelling rapidly. The petrol level is too high. The timing of the spark is too late. Try advancing the ignition. (3.) The size of the exhaust pipe should be about right. The short induction pipe could hardly account for jerky running. It is probably due to the weak mixture.

C. V. Duberly and F. C. North, two Yarmouth riders in the M.C.C. London-Edinburgh and back run. The machines are 1910 3½ h.p. Ariels.

THREE TWIN REX RIDERS IN THE T.T.

F. Mackay, Harrogate, 4 h.p. twin m.o.i.v. Rex. For description of this new model see last week's issue.

Housing a Motor Cycle.

I have lately bought a new 3½ h.p. Rex, and intend bringing it to my lodgings in London. (1.) Are there any restrictions as to building a shed in the garden at about twelve feet from the house, against a fence dividing two gardens? I shall probably keep no more than one can of petrol. (2.) Would it be advisable to keep this can in the shed?—H.W.

(1.) We do not think so. You can easily get a portable shed and set it up in the garden as far from the house as possible. (2.) There should be no objection to you keeping a two-gallon can in the shed as long as it is well away from the house. It might, however, be advisable for you to consult the district Petroleums Act inspector about the matter.

Timing the Magneto.

I have overhauled my 3½ h.p. N.S.U. with Eisemann magneto. I retimed it as follows: Magneto retarded, piston dead on top of compression stroke, and points of the magneto in the act of parting. (a.) Is this correct, as I find that when I advance the magneto lever fully the platinum points part about ⅛in. before the compression stroke has completed its course? The engine seems to run all right on the stand. (b.) Is the spark expected to take place at the plug the instant the magneto points part? (c.) If it is timed too early, would a fraction cut out of the breaking cam be of any advantage, as when it is put back a tooth it is too slow, and the compression stroke is practically wasted? (d.) Should there be any end-to-end play on magneto armature?—B. W.

(a.) As far as we can gather, you have timed the magneto slightly on the fast side. The points should begin to separate when the piston is at the top of the stroke, and the spark lever two-thirds advanced. If the engine skids the back wheel in starting or knocks appreciably at slow speeds, the timing should be slightly retarded. (b.) Yes, certainly the spark takes place at the plug practically simultaneously with the separation of the points. (c.) Do not on any account interfere with the shape of the contact breaker cam if the timing is too early. You must retard slightly the driving pinion on the armature-shaft. (d.) A small amount of end play would not matter, say 1-64th of an inch, but up and down play denotes worn bearings.

Refusal to take Extra Air.

I fitted an Amac H.B. controlled carburetter to my twin-cylinder tricar with very satisfactory results, but cannot get carburetter to take extra air. Immediately extra air lever is operated engine slows down and stops, also the induction pipe and carburetter are always covered with water due to condensation, I presume. I have now fitted carburetter nearer engine, but there seems very little improvement as far as condensation goes. What do you advise in the matter? I am using 32 spray and 16 choke tube.—T.W.

Jas. Baxter, Musselburgh, who was a competitor in last year's event.

We can only suggest (1) that the jet is not large enough, (2) that the choke tube or air adapter is slightly too large, or (3) that the carburetter is not properly warmed. Putting it near the engine may not cure the trouble. You must take the hot air direct from the cylinder if condensation takes place to any extent.

An Overhaul Needed.

A few months ago I had the cylinder of my 4½ h.p. Lagonda motor cycle bored out and new piston and rings fitted. Since then it has not run at all satisfactorily, as it misses fire badly. I altered the carburetter (a Longuemare) all ways. First larger and smaller jets, then different choke tube, but cannot cure the misfiring. If I adjust contacts so that they bear very hard together the engine fires all right at about fifteen to twenty miles an hour, but over or under that it still misfires. I have broken three contact blades through adjusting the points so hard. I have renewed all wiring. The ignition is by accumulator, make and break contacts, and plain coil (Nilmelior).—W. J. A.

Without seeing the machine it is rather difficult to tell what the trouble actually is. Of course, by altering the carburetter you may have upset things completely, unless you are quite certain of having refitted it as it was previous to the repairs. Also examine your contact breaker. This may be seriously worn and requires new parts and new contact points. The opening of the inlet valve is also important. Three-sixteenths of an inch is approximately the correct amount. Have you tried a different coil, and is the accumulator fully charged? Probably, in your case, it would be better to have the machine looked over by the makers.

Starting from a Standstill.

I have had a N.S.U. two-speed geared pulley fitted to a 3½ h.p. Bradbury motor cycle. Is it possible to start from a standstill? If so, how? I understood this was so when I ordered the attachment, but as far as I can make out it still requires the usual run, etc., which I want to avoid.—G. A.

To start from standstill it is necessary to jack up the machine, engage the high gear, and start the engine by the pedals, put the gear in neutral, then take the machine off the stand, turn the gear control handle slowly to engage the low speed, accelerate the engine, and the machine will glide away without difficulty.

READER'S REPLY.

Belt Jumping off Pulleys.

If "B. W." will run his belt the opposite way I think most likely it will be all right. I have just had a new belt of the same make, and run it about 100 miles. After cleaning I may have put it on the reverse way, and it insisted on coming off, though pulleys and belt are correct angle and appeared perfect. On turning the belt round, the trouble was cured.—H.C.

David C. Bolton, Oakamoor, N. Staffs, probably the youngest entrant. The machine he is depicted with is the ninth he has owned.

Another New Model.

A new model of the Kerry-Abingdon motor bicycle built on Tourist Trophy lines is now in hand, and will be ready in a day or two.

The 1910 Four-cylinder F.N.

After nine months waiting we now learn that the new four-cylinder F.N. is ready for delivery. From all accounts the machine possesses many excellent qualities which we hope to describe as soon as opportunity offers.

R.A.C. Official Appointment.

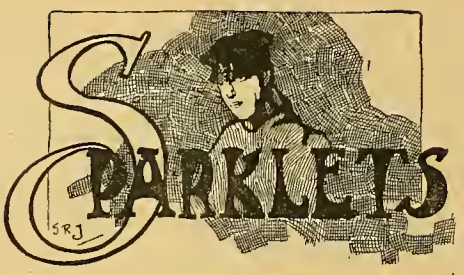
Mr. C. H. Hitchen, Euston Road, Morecambe, has been appointed official motor cycle repairer to the R.A.C. Motor cyclists who may experience any difficulty with their machines in the neighbourhood of Morecambe will have their requirements properly attended to by telephoning to 112, Morecambe, or telegraphing to "Motor," Morecambe.

The Motor Cycle in Distant Lands.

As an evidence of the manner in which modern motor cycles are obtaining a foothold in distant markets, the Lloyd Motor and Engineering Co., Ltd., 132, Monument Road, Birmingham, advise us that through one of their agents in Singapore they have sold two L.M.C. motor cycles with variable gears and free engines to two Johore princes.

Descriptive of the 1910 Brown.

"The 1910 Book of the Brown Motor Bicycle" is an interesting *brochure* describing in detail the various features of the new 85 × 85 mm. model. The successes on Brown motor cycles form quite a formidable list. For this year two models are listed—the Standard and the Tourist Trophy. Five pages are devoted to hints on the management of motor cycles. Brown Bros., Ltd., Great Eastern Street, E.C., will gladly post copies to our readers on request.



Change of Title

The name of E. M. Bowden's Patents Syndicate, Ltd., has, with the sanction of a special resolution of the members, and with the approval of the Board of Trade, been changed to the more simple and convenient style of Bowden Wire, Ltd. All future communications should therefore be addressed in accordance.

A Tyre Catalogue.

We are in receipt of the latest catalogue of Avon tyres, manufactured by the Avon Indiarubber Co., Ltd., Melksham, Wilts. Several patterns of motor cycle tyres are turned out by this company—a hexagon rubber studded motor cycle cover (the studs of which are of a hexagon shape), a round rubber studded tyre, and a fluted pattern. The first two patterns are made in two qualities and the last named in three qualities. The company also lists ordinary endless and butt-ended tubes, a steel studded motor cycle cover, made in only one quality—the best possible—of Egyptian cotton casing, rubber tread and specially hardened studs provided with washers top and bottom. In addition, they also manufacture a tricar tyre of the most substantial kind, plain or fluted, with steel studs, made in three sizes—2¼in., 2½in., and 3in.

The New Premier.

The Premier Cycle Co. have one of their new 3½ h.p. motor bicycles on view at their London depot, 20, Holborn Viaduct, E.C. This is fitted with the new engine with auxiliary exhaust release, recently described in *The Motor Cycle* for the first time.

The Tourist Trophy Race.

Mr. G. E. Roberts, of the Simms Magneto Co., Ltd., will take up his headquarters at the Sefton Hotel, Douglas, I.O.M., so that he may look after the interests of users of Simms magnetos during practice for the Tourist Trophy and also during the race week.

Home-made Tyre Gaiters.

A correspondent sends us a tip well worth following as to how to manufacture efficient home-made tyre gaiters for motor cycle covers. He writes, "I have been using old covers cut in sections (wired ones for preference, or beaded ones with the bead cut off) with holes burnt in them with the heated shank of a rat-tail file, the holes being about an inch apart. These can then be laced over the bad place in the tyre. I always carry a few feet of old tyre ready bored in this way, and then cut off a section suitable for the place required to be protected."

A Comprehensive List.

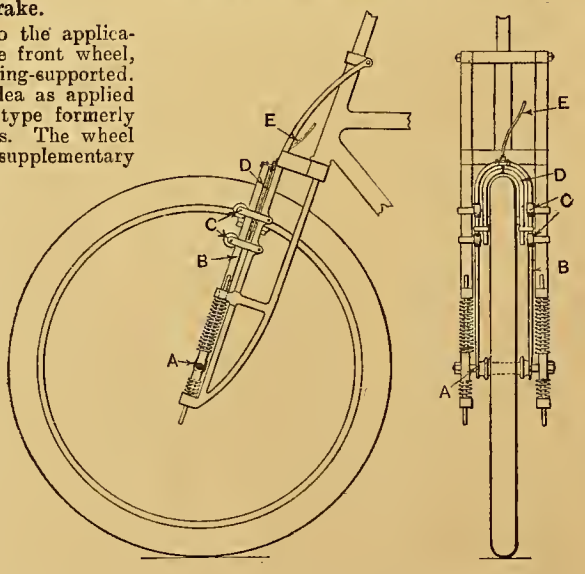
The Service Co., Ltd., 292-293, High Holborn, W.C., have just issued a new list of motor cycles and accessories. In addition to several well-known makes of complete motor cycles, for which the Service Co. are agents, the list contains descriptions, illustrations, and prices of practically every known motor cycle accessory. It is certainly one of the most complete lists ever issued in connection with motor cycles, and we advise readers to send for a copy.

RECENT PATENTS.

By ERIC W. WALFORD F.C.I.P.A.

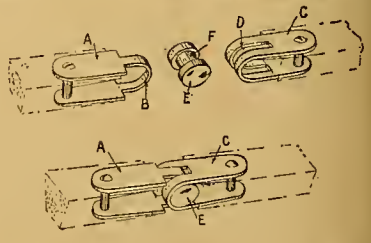
A Front Rim Brake.

The invention relates to the application of a rim brake to the front wheel, when the latter is spring-supported. The drawing shows the idea as applied to a spring fork of the type formerly fitted to the Rex machines. The wheel spindle A carries a light supplementary frame or arch B. This arch always moves with the wheel spindle, and rollers C are provided to act as guides and reduce the friction. The rim brake D is secured to the arch B, and is operated by Bowden mechanism E. It will be seen that as the arch B always moves with the wheel and carries the brake with it, the latter is always in its correct relative position.—R. Barratt, No. 9,504, 1909.



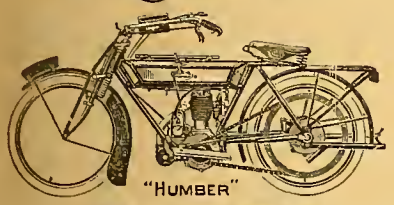
A Detachable Belt Fastener.

This belt fastener comprises a metal strip A, formed with a narrow slot D, to receive the loop B. The ends are put together with the loop in the slot, and through the loop is passed a stud E, which is recessed as at F to receive the loop B. When the fastener is in



place the stud F cannot drop out, as it is held from lateral movement by the engagement of the loop B with the groove F. To disengage it the parts A and C are pushed together allowing the stud to be freed.—W. Pilkington, No. 9,410, 1909.

£56 10 0 for £44 0 0.



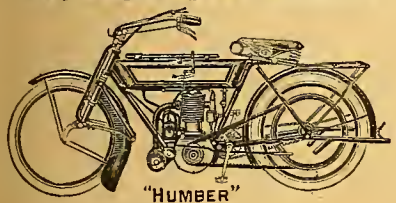
"HUMBER"

1909½ HUMBERS

brand new. These you can hardly tell from 1910 models, being fitted with improved pattern silencers, spring forks, larger pulleys, Roc licensed two-speed gear, h.-b. control, registered tank, high tension magnetos, Dunlop tyres, oil pump operated by foot, stand and carrier, toolbag with all tools fitted to handle-bar. Fully guaranteed.

£44 complete with sidecar.
£40, less sidecar.

1909½ Single Speed Humbers.



"HUMBER"
£3 315s.

Druid spring forks, Bosch magnetos, h.-b. control, pedalling gear, stand and carrier, toolbags, tools, number-plates, etc. Usual price £45. A clear saving of £11 10s. Only Booth's can offer such value.

NEW 1909 ARNOS.

We have a few Brand New 3½ h.p. Models, fitted with magnetos, h.-b. control, complete with stand, etc.
List price £45. Our price, **£26 10s.** Or exchange.

Other Sidecar Machines.

½ h.p. BROWN, twin, 1908, magneto, free engine **£25 10**
½ h.p. REX DE LUXE, Roc clutch, magneto.. **£21 10**
h.p. Twin REX, 1908, magneto, spring forks.. **£24 10**
½ h.p. HUMBER, 1909, two speeds, soiled only **£28 10**
½ h.p. BAT, magneto, two speeds, spring frame.. **£24 10**

Beautiful Solo Mounts.

¼ h.p. BRADBURY, 1909 model **£26 10**
½ h.p. REX Tourist, 1909, run about 150 miles.. **£28 10**
h.p. REX Twin Tourist, 1908 model **£21 10**
¼ h.p. N.S.U. Lightweight, magneto, 1908 model **£16 10**
-6 h.p. REX Featherweight, magneto, 1908 model **£16 10**
h.p. Twin REX Speed King, magneto, 1908 model **£21 10**
h.p. Twin PHANOMEN, magneto, Nala 2-speed **£30 0**
½ h.p. MINERVA, magneto, very nice order.... **£16 10**
h.p. MINERVA, 26in. wheels, spray **£3 15**
½ h.p. ARIEL Lightweight, vertical engine, 26in. wheels, H.B. control **£3 15**
h.p. MOTO-REVE, 1909, nearly new **£24 10**

TRICARS.

h.p. HUMBER, open frame, two speeds **£30 0**
h.p. REX Twin, with forecar **£17 10**

ENGINES.

h.p. Antoine, water-cooled, new **£8 15**
h.p. Standard, water-cooled, new **£7 15**
½ h.p. De Dion, air-cooled **£2 5**
½ h.p. M.M.C., wants slight repairs **£2 5**

MACHINERY FOR SALE OR EXCHANGE.

¼in. Screw-cutting Lathe **£16 10**
Early New Radial Drill, 4ft. arm **£40 0**
Lower Screwing Machine, with dies **£10 0**
¼in. Treadle Lathe, new **£3 5**
WANTED.—Small Turret or Capstan Lathe, sensitive drill, to take up to ⅜in. drill.

1,000 Waiting. We want any number of Magneto Motor Cycles for Cash.

BOOTH'S MOTORIES
CHARLES STREET, off Square Road,
Phone 1062. HALIFAX. 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

3½h.p. Chater-Antoine, good order all round, accumulator, £13; Millford trailer-sidecar, good, £3.—Andrassy, Thornes, Wakefield.

3½h.p. Singer's Engine, Chater-Lea frame and fittings, Simms magneto, Amac, h.b., Shamrock belt, built April, 1909; £18.—J. Price, Clayton St., Preston.

LIVERPOOL.—Motosacoche, Moto-Reve, Welt, the only veritable lightweights; Phelon and Moore heavy and light.—Sole official agents, British Cycle Co., 1, and 3, Berry St.

QUADRANT, Chater-Lea, 3½h.p., magneto, run about 1,100 miles, almost new condition; £35, or near offer.—Wingley, 27, Liverpool Rd., Cadishead, near Manchester.

ROYAL Enfield Lightweight Motor Cycle, twin cyls., magneto, mechanical valves; 38 guineas; from stock.—District agents, Newton and Co., 50, Blackfriars St., Manchester.

BARGAIN, £3 19s. 6d.—2h.p. Minerva, M.O.I.V., spray, switch, handle-bar, tyres perfect, low seat, long bars, wants assembling; first P.O.—80, Bispham Rd., Southport.

£12.—Zedel engine, spring forks, Watawata, B.B., h.b., Vim stand, starts like a fire engine, just overhauled, guaranteed faultless.—W.N., 6, Meadow Bank, Accrington.

MINERVA, 2h.p., low frame, just overhauled and enamelled, £9; Singer, low frame, 2h.p., £10; Bradbury, low frame, £10; first-class condition.—174, Stamford St., Stalybridge.

5h.p. Twin magneto motor cycle, 1910, Amac h.b., variable jet, new, Continentals, Whittle belt, low, fast, climb anything, excellent condition; £27.—68, Highfeld Rd., Doncaster.

CLYNO Motor Cycles.—Have you seen them? Well you are missing something good. Send P.O. for lists, or send address, will demonstrate a trial machine.—Potter, agent, Leicester Grove, Leeds.

3½-4h.p. 1909 tourist twin Peugeot motor cycle, two-speed gear, 1910, B. and B. carburetter, h.b.c., non-skid tyres, low, powerful, in first-class order; £25; trial and inspection.—Motorist, Red Cottage, Hapton, near Burnley.

2¼h.p. Brown, cylinder recently rebored, 1910 handle-bar controlled, Brown and Barlow carburetter, two accumulators, Glare electric lamp, horn, and all spares; a real bargain, £10.—R. Batey, 82, Rumley Rd., Burnley.

MOTOSACOCHE, 1¾h.p., special machine, accumulator, enamelled grey, engine overhauled by Motosacoche, guaranted perfect, fast, and excellent hill-climber, very low, complete, stand, carrier, lamp, horn, Brooks saddle; 15 guineas.—Topp, Carlisle St., Goole.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

3½h.p. Humber, free engine, good running order; cash, £5.—S. Minshall, Stoneway, Bridgnorth.

NEW Model Tourist Trophy Triumph for sale; £50; just arrived.—H. C. Marston, Rock Ferry.

£16.—2¾h.p. Zedel, climb anywhere, D-all forks, footrests, many spares; wanted, higher power.—W. H. Fellows, 36, Balfour St., Hanley.

5-6h.p. Rex, twin, spring forks, cantilever seat, footboards, in perfect order; £13, no offers.—Walton, 24, Jeavons St., Coseley, Staffordshire.

PHELON and Moore, 1910 model, brand new, just arrived from makers, unpacked, with sidecar, wicker, nicely upholstered; £65.—Moss, Wem.

TRIUMPH, 1910, standard model, nearly new, guaranteed perfect condition; trial; £45, or near offer.—Moss, Wem.

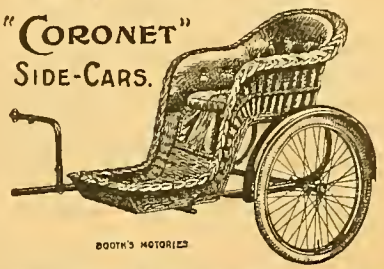
DOUGLAS, 1909, new October, perfect condition, Shamrock studded tyres, Lucas searchlight lamp, spares; £27, no offers.—Nirvana, Quarry Rd., Heswell, Birkenhead.

ZENITH Gradua, 1909, 4h.p. J.A.P., new Palmer cord back tyre, rubber studded front, spare cover, butt-ended Michelin tube, efficient detachable mudshield, new Whittle belt, climbed Amulree; £38.—Ellis, Garage, Oswestry.

DOUGLAS, Enfield, Premier (twin or single).—Birmingham and District Agency. Samples on view at Depot, and at Stand 131, of the Bingley Hall Exhibition; trials arranged; present machines taken in part payment; deferred payments if desired; few second-hands.—Colmore Depot, 31, Colmore Row (opposite Cathedral Church).

DUFFIELD'S Motor Exchange.—I am giving £5 5s. sidecars away for a short time to purchasers of new motor cycles from me (or accessories to value). Second-hand motors in stock; state wants, tubular carriers, 18in. by 8in., 3s. 9d.; with number plate, 4s. 6d.; box spanners, sets of three, 1s.; double h.b. control levers, plated, complete, with cable, 4s. 6d.; single levers, 2s. 6d.—Braybrook St., West Bromwich, Staffs.

£4 17s. 6d.



We maintain the "Coronet" is the BEST DESIGNED SIDECAR on the Market.

Free from Side-slip.—The "Coronet" Sidecar is attached in three places, the front down tube, bottom stay, and saddle bolt, and can be detached in three minutes. Every tube of attachment is telescopical and adjustable to suit any length wheelbase, any height or width. When attached the combination is as firm and rigid as a Tricar, and entirely free from side-slip, and can be driven safely without passenger if desired.

Delivery from stock to suit TRIUMPHS, REXES, P. & M.'s, N.S.U.'s.
Price £4 17s. 6d. Discount to trade.

CORONET ADJUSTABLE PULLEY.

12/6

The best variable speed pulley on the market. Loose flange securely held in any position by a simple yet ingenious contrivance. Gear can be altered with out the aid of spanners, lock ring easily operated by hand. Buy a "Coronet" pulley and gear your machine suitable for hill-climbing.

Standard makes, such as Rexes, Triumphs, Minervas, supplied without the necessity of sending old pulley for pattern. **Discount to trade.**

"GRIPSKIN" BELTING.

Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

½in., **10d.**; ⅝in., **11d.**; ¾in., **1/1**; 1in., **1/2.**
Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

Clincher Covers: 26in. or 28×2in., 2¼in., 2¾in., **16/6.**
Dunlop Covers: 26×2in., **15/6**; 26×2¼in., **17/6**; 28×2¼in. or 2¾in., **15/6.**
28×2in. Dunlop Covers: Beaded, **14/6**; Wired, **10/6.**
24×2¼in. Clipper-Reflex, heavy treads, **12/6**; ditto tubes. **4/-.** 26×2¼in. Clincher Tubes, **6/6** each.
Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from **59/6.** Your old coil and acc. taken in exchange.

CARBURETTERS.

BROWN AND BARLOW. AMAC.
Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters.
OLD CARBURETTERS BOUGHT.

MISCELLANEOUS.

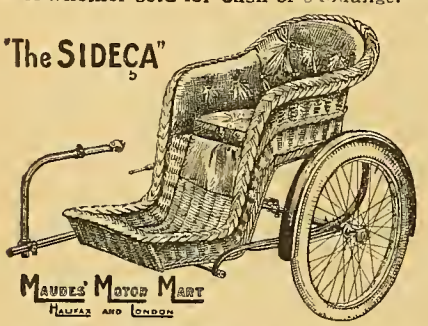
Mudguards and Stays 3in., **2/11**, 4in., **3/6**
Silent Silencers for engines to 5 h.p. **3/3**
Long Handle-bars, well plated ..... **5/6** and **6/6**
500 Fuller Midget Trembler Coils **17/6**
200 Fuller Plain Coils (your old coil taken in exchange) **10/6**
250 Mirror Lens Lamps, with generators **14/9**
50 Pairs New X'lall Spring Forks, latest **15/-**
Longuemare, Minerva, F.N. carburetters .....each **5/6**
Amac and B. & B. carburetters **7/6**
Good Forecarriage, complete, with tyres..... **£2 19s.**
26×2¼ Clincher Tubes..... each **6/6**
Norman Two-speed Gear, nearly new ..... **£2 5s.**
New Amac Carburetter, handle-bar control **17/6**
Second-hand pair XL'All or Matchless Spring Forks **9/6**
De Dion Two-speed Gear Box, nearly new .... **£2 5s.**
Low tension Magneto suit car **27/6**
New Pistons, 81 mm. diam..... **3/9**

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), HALIFAX.
Telephone 1062.

MAUDES' MOTOR MART

HALIFAX AND LONDON

Earliest Possible Deliveries of any 1910 Models.
Sole Yorkshire Agents for the T.A.C. Motor Cycle de Luxe
Sole London Agents for the NORTON.
Sole Halifax Agents for TRIUMPHS, DOUGLAS, PHELON MOORE, BRADBURYS, etc., etc.
Every 1910 model we sell or offer for sale carries the makers' full guarantee regardless of whether sold for cash or exchange.



The "SIDECA" £5 5s.

Undoubtedly the Sidecar-de-Luxe for motor cyclists at a moderate price.

Acknowledged by the trade in general to be perfection. Superior to others sold at £8 8s. and more.

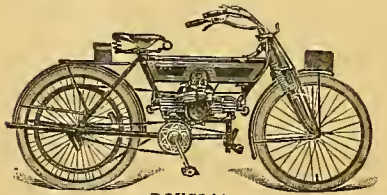
Guaranteed twelve months.

For four weeks from date we are prepared to take 200 second-hand sidecars in part payment for above, and to allow high market value in order to popularise. Remember this offer only lasts four weeks.

Send for descriptive leaflets post free upon request. Discounts to the trade.

1910 V.S.

Model F, 5 h.p., direct drive	..	£55
Model F, 5 h.p., two-speed..	..	£65
Model F, 7 h.p., direct drive	..	£57
Model E, 7 h.p., two-speed..	..	£67



DOUGLAS.

Model B..	36 gns.
Model C..	38 „

1910 MOTO-REVE.

1¾ h.p. Model, single	27 gns.
2 h.p. Model, twin	36 gns.

T.A.C. Motor Cycle de Luxe.
Wheel or handle-bar steering, 65 gns.
F.N.—2¾ h.p., two-speed, £40; 6 h.p., four-cylinder, £50.
PREMIER.—3½ h.p. single, £47 10s.; 3½ h.p. twin, £52.

LISTS POST FREE FROM

MAUDES' MOTOR MART,
Powell Street, HALIFAX.
'Phone: 433. Telegrams: "Petrol, Halifax."
136, Great Portland Street, LONDON, W.
Phone: 552, Mayfair. Telegrams. "Abdicate. London."

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

3½h.p. Humber, with forecar attachment, free engine, perfect; £14.—Sharpe, Mildenhall.

4½h.p. F.N., guaranteed perfect running order; trial; £28 cash.—Butterworth, Crafers, Warwick.

DOUGLAS, king of lightweights; catalogue free; latest models in stock.—T. Norton, ironmonger, Coventry.

£10 10s.—Cycle, 3½h.p. Whitley engine, low seat, long handles, perfect, spares; bought new Premier.—78, Widdrington Rd., Coventry.

TRIUMPH, Rex, Minerva, Excelsior motors, new and second-hand; send for weekly list.—The Victoria Garage and Electrical Co., Ltd., Coventry.

3½h.p. Pengeot, two ignitions, with forecarriage attachment, or will exchange for Triumph, or any other good make.—159, Sneinton Dale, Nottingham.

ARIEL, Ariel, Ariel.—A few 2½h.p. lightweights at clearance prices, accumulator ignition; write for particulars.—Ariel Wks., Bournbrook, Birmingham.

BARGAIN.—Owner going abroad, offers his 2h.p. Royal Talbot, thorough going order, splendid condition; must sell; sacrifice £5, or nearest.—A.P., 7, Mill St., Leamington.

4½h.p. Minerva, twin, magneto, Whittle, stand, carrier, adjustable pulley, £25; 2¾h.p. Campion-Minerva, new piston and accumulator, footboards, £13.—Smith, c/o Dr. Wood, Creswell, Mansfield.

7-8h.p. Minerva (built) Cycle, everything spick and span, not ridden 700 miles, Powell two-speed hub, spring forks, R.O.M. commutator, handle-bar controlled, ideal machine for work; first £35 will secure, exceptional bargain.—Sitson, Bond St., Leicester.

PREMIERS (twin or single), Douglas, and Enfield.—Birmingham and District Agency. Samples on view at Depot, and at Stand 131, of the Bingley Hall Exhibition; trials arranged; present machines taken in part payment; deferred payments if desired; few second-hands.—Colmore Depot, 31, Colmore Row (opposite Cathedral Church).

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

TRIUMPH, 1908 (twelfth month), equal new, R.O.M. non-skids, numerous extras; £30.—Stevens, Lopham, Thetford.

3½h.p. Minerva, spring forks, B. and B., h.b.c., Watawata, low, excellent condition; cheap.—Hopkin, Cordon St., Wisbech.

WHAT Make Motor Bicycle do you fancy? We can supply and give early deliveries. We have actually in stock new Triumphs, Premiers, and Bradburys, cash or instalments.—Parker and Son, St. Ives, Hunts.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

REX, 3½h.p., in running order, £8; also trailer.—Frank Harrison, Briarwood, Woodbridge.

1909 Rex, new August, Whittle belt, lamp, generator, studded Clincher on back; £30.—Hinton, Penylan Rd., Cardiff.

2¾h.p. Excelsior, good running order, Palmer cord and P.U. studded tyres, in new condition; bargain, £7.—Roberts, Brynavon, Llandrindod Wells.

ENFIELD, Douglas, Premier (twin or single).—Birmingham and District Agency. Samples on view at Depot, and at Stand 131, of the Bingley Hall Exhibition; trials arranged; present machines taken in part payment; deferred payments if desired; few second-hands.—Colmore Depot, 31, Colmore Row (opposite Cathedral Church).

3½h.p. Rex, plate clutch, 1909 model, new February, 1910, J.A.P. lubrication, Bosch magneto, Clincher studded, unpunctured, Lucas headlight, very fast, flexible, champion hill-climber, guaranteed perfect; expert examination and test invited; cash £42, or exchange and cash for two-speed twin Rex, J.A.P., or Indian.—Handel Davies, Garnant.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

DOUGLAS, late 1908, splendid condition, including accessories; lowest, 19 guineas.—Ratchif, Kilminster, Stroud.

2¾h.p. Globe, Longuemare carburetter, in perfect order; £8; would take push bike in part.—Shurey, 65, Bedford Rd., Reading.

1908 Rex, 3½h.p., magneto, nearly new, Watawata belt and detachable tubes, perfect working order; £15.—Col. Bagnall, Jersey.

3½h.p. Quadrant (Birmingham), Bosch magneto, Amac, h.b.c., nickel, enamel, tyres and inner tubes all as new, F.R.S. headlight, with generator, lot of accessories; £22 10s.—S. Cadel, Faringdon. Tel.: No. 5.

MAUDES' MOTOR MART

HALIFAX AND LONDON

List of Machines for disposal. All guaranteed in good running order.

Six New 3 h.p. N.S.U.'s, fitted with magneto ignition. Thoroughly up to date. Maker's price, £38. Our price £28. Call and inspect them.

SECOND-HAND MACHINES.

*N.S.U. 3½ h.p., magneto, brand new, 26×2¼in. tyres, low built	
*N.S.U. 3 h.p., magneto, brand new, only 3 left; cash	
*N.S.U. 5½ h.p., twin, magneto, low built, only 2 left	
*REX 5½ h.p., magneto, low built, good tyres to both wheels, in beautiful condition throughout	
*BRADBURY 3½ h.p., brand new 1910 model, standard throughout	
*TRIUMPH 3 h.p., magneto, grey finish, Palmer tyres to both wheels, handle-bar control, etc.	
*TRIUMPH 3 h.p., low built, in good condition, etc...	
*KERRY 5½ h.p., low built, 26×2¼in. tyres, in good condition, a splendid sidecar machine	
*HAMILTON 4 h.p., low built, handle-bar control, footboards, etc.	
*ARIEL 3½ h.p., B. and B. carburetter, good tyres, 26×2¼in.. low built, etc.	£
*F.N. 1¾ h.p., magneto, F.N. carburetter, handle-bar control, good tyres to both wheels, in perfect condition	£
*DURKOPP 2¾ h.p., spray carburetter, black finish, good tyres to both wheels, 26×2in.	£
*CLARENDON 3 h.p., accumulator ignition, M.O.V., good tyres, green and gold finish	£
MINERVA 4½ h.p., twin, 1908, low built, good tyres	£
CLYDE 2¾ h.p., magneto, good tyres	£
PEUGEOT 3½ h.p., Truffault forks, magneto, steel-studded rear tyre, very fast	£1
SINGER 3 h.p., new tyres, magneto, good order	£1
REX 1909, 3½ h.p., magneto, cantilever seat, Mabon clutch	£
TRIUMPH 3½ h.p., 1909, July model, only done 500 miles, complete with Cowey speedometer	£4
TRIUMPH 3½ h.p. 1909 (November), free engine model, with Cowey indicator	£5
MOTO REVE 2 h.p., 1909 model, grey finish, Druid forks, perfect order	£2
N.S.U. 3½ h.p., magneto, good tyres, spring forks, just overhauled	£1
ARIEL 3 h.p., M.O.V., 26in. wheels, low built, very good order	£1
MINERVA 3½ h.p., 26in. wheels, spring forks, very low, good order	£1
*BRADBURY 2¾ h.p., three-speed pulley, in good running order and condition	£11
*REX 5½ h.p., accum. ignition, splendid tyres to both wheels, 26×2¼in., footboards, aluminium finish ..	£11
*EXCELSIOR 3 h.p., grey finish, a good climber ..	£11
*MINERVA 3½ h.p., grey finish, in splendid condition, good tyres to both wheels, 26×2¼in.	£11
*FAIRY 2 h.p., low built, an ideal lightweight	£12

50/- down, and the balance 5/- per week secures the following:

*QUADRANT 1¾ h.p., spray, good condition	£8
*DURKOPP 2¾ h.p., good tyres, in A1 condition ..	£10
*EXCELSIOR 2¾ h.p., long bars, spray carburetter, rubber and canvas belt, etc.	£10
*BRADBURY 2¾ h.p., three-speed pulley, in good running order	£10
*MINERVA 1¾ h.p., spray carburetter, in fair condition	£8
BOWDEN 2 h.p., low built	£10
MINERVA 2¾ h.p., good goer	£10

TRICARS.

REXETTE tricar 5 h.p., open frame, two speeds, wheel steering	£25
*REX 5 h.p., two-cylinder, two speeds, low built, handle starting	£18
REXETTE 8 h.p., twin cylinder, open frame, two speeds, water-cooled	£30

CARS.

PRUNEL 20 h.p., four cylinder, four speeds, long chassis, good order	£160
AUSTIN Brand New 15 h.p., 1910 chassis standard, long chassis	£320
VAUXHALL 5½ h.p., two speeds, water-cooled, good running order	£16
LOCOMOBILE 5½ h.p. Steam Car, good running order, two-seater	£12

Exchanges made on any of above.

WANTED—any number Magneto Motor Cycles.

All machines in good running order before leaving our works, and tested by experienced men.

Machines marked * are in stock at Halifax, others at London.

MAUDES' MOTOR MART,
THE FAIR FACTORS, **Powell St., HALIFAX**
Telephone: 433 day; 904 night.
Telegrams: "Petrol, Halifax."
Also 136, Gt. Portland St., W. (off Oxford St.)
'Phone: 552, Mayfair. Tels.: "Abdicate. London."

MOTOR BICYCLES FOR SALE.

F.N., 4-cyl., 1908, magneto, studded tyre, all tools, horn, spare tube, perfect order; £25.—Toomer, 4, Northbrook St., Newbury, Berks.

F.N. 2-speed Shaft-driven Lightweights; immediate delivery; machines in stock at The F.N. Motor Depot, 3, Palmerston Rd., Boscombe, Bournemouth.

F.N. 4-cyl. 1910 Models in stock.—The F.N. Motor Depot, 43, Palmerston Rd., Boscombe, Bournemouth.

CHATER-LEA, Stevens, 4h.p., adjustable pulley, spring forks, Bates non-skid; £12; too fast for owner; first cheque.—Austin, Wolverton Rd., Stony Stratford.

2¼h.p. Quadrant, 1908, Bosch magneto, with all spares, 2 Clincher tyres, in good condition, machine recently overhauled; £20, or offers.—4.360, *The Motor Cycle* Offices, Coventry.

3½h.p. Humber Motor Cycle, in good running order, new tyres good, good hill-climber, free engine, Brooks saddle; £9 10s., or exchange for cycle and cash, or anything useful. — Proprietor, Wheel-Shed, Privett, Alton, Hants.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

NYE'S!—1910 2¼h.p. Mot.-Reve, shop-soiled only; £32.

NYE'S!—1909 3 h.p. Ariel Druids, magneto; only £22.

NYE'S!—1909 5-6h.p. F.N., as new, many extras; £32.

NYE'S!—1908 6h.p. N.S.U., Bosch magneto, R.O.M. tyre, fine machine; £24.

NYE'S!—1908 6h.p. N.S.U., magneto, Roc two-speeds, fine condition; £31.

NYE'S!—6h.p. Rex, spring forks, good tyres, guaranteed ready to ride away; £15.

NYE'S!—6h.p. Rex, spring forks; a bargain, £12.

NYE'S!—4h.p. Lagonda, good order; £11.

NYE'S!—2¼h.p. Quadrant, running order; £4 10s.

NYE'S!—3½h.p. Kerry, two speeds, chain drive; £13.

NYE'S!—69 Leather Lane, Holborn, London. 'Phone, 6299, Holborn.

N. S.U. Motor Cycle, 2¼h.p., in good running order; £8.

h.p. Motor Cycle, in good running order; £6 10s.

M.C. Motor Cycle, 3½h.p. engine, good, but machine requires overhauling; £5.—W. H. Smith, New Rd., Gravesend.

OULLMAN'S.—Triumph, 3½h.p., late 1908, 2¼ Shamrocks; £28.

OULLMAN'S.—Rex, 3½h.p., tourist, late 1909; £26; as new.

OULLMAN'S.—Terrot, lightweight (best French machine), 2¼h.p., magneto, spring forks, and spring frame; £16.

OULLMAN'S.—Roc, 5-6h.p., twin Military, late 1909, two-speed, free engine, not run 500 miles; £35.

OULLMAN'S.—Griffon, 3h.p., Amac, Dunlops; £12.

OULLMAN'S.—F.N., 4-cyl., 4½h.p.; £22.

OULLMAN'S.—Have many others; lowest prices; any trial.—R. M. Pullman and Bros., London Rd., Norbury, London.

-6h.p. Sarolea, as new, low, fast; £20, no offers.—Gassmann, Enfield Highway.

.N., 4-cyl. latest magneto, nearly new, unscratched; £28.—30a, Swaby Rd., Earlsfield.

EX, 3h.p., must sell; £6 10s., or nearest early offer. —J. Mant, Fire Station, Horley.

½h.p. Zedel, M.O.V., Chater-Lea, splendid condition, 2 powerful; £10.—F. Piner, Colabrook.

.S.U., 1908, 3½h.p., magneto, as new, Watawata, etc; £21.—Shermans, Homestead, Sutton.

½h.p. Centaur, perfect order, or exchange for old car, any condition.—Harper, Wrotham, Kent.

908 6h.p. Twin Pengeot, perfect; £19, or lower power and cash.—Francis, High St., Esher.

HITTLE'S.—Bat, 6h.p. J.A.P., twin, latest spring frame, and forks, splendid order; £22 10s.

HITTLE'S.—Rex de Luxe, 5.6h.p., twin, magneto, Roc clutch, nearly new, unscratched; £26.

HITTLE'S.—Minerva, 4½h.p., twin, M.O.V., spring forks, footboards, good condition; £16 16s.

HITTLE'S.—Singer, 3½h.p., magneto, vertical engine, belt drive, like new; bargain, £15 15s.

HITTLE'S.—F.N., 4½h.p., magneto, 4-cyl., spring forks, excellent order; great bargain, £22 10s.

HITTLE'S.—Bradbury, 3½h.p., vertical engine, runs well; £6 15s.—Whittle's Motor Exchange, Earlsfield.

The Halifax Motor Exchange

LARGEST REX DEALERS,

16, Westgate,

HALIFAX.

Phone, 766. Telegrams: "Perfection."

Brand New Twin REX DE LUXE, fitted with latest 1910 forks, magneto, carburetter, and other 1910 fittings, two speeds and free engine, and de Luxe sidecar, with detachable fittings.

SPECIAL PRICE ..... £55.

Worth £20 more and fully guaranteed.

Cash, Exchange, or Easy Payments.

1910 Twin INDIAN, new	£57 0
1909 5 h.p. Twin ROC, two speeds and free engine, 2½in. Dunlops, spring forks	£40 0
1910 Twin Tourist REX, nearly new.	
1909 Two-speed Twin REX DE LUXE	£39 0
1909 5 h.p. Twin REX, spring forks	£32 10
1908 5 h.p. Two-speed REX DE LUXE	£35 0
1908 Twin Tourist REX, magneto	£26 10
5½ h.p. REX DE LUXE, clutch, handle starting	£21 0
5½ h.p. Twin REX, spring forks	£16 10
All 1910 REXES—Cash or Exchange.	
1909 3½ h.p. Magneto REX	£29 10
1909 3½ h.p. REX Speed King, soiled	£32 10
1909 3½ h.p. Two-stroke REX DE LUXE, Roc clutch, two speeds, as new	£33 10
1909 Mag. MOTOSACOCHE, Druid forks	£21 0
1908 3½ h.p. Magneto REX, spring forks	£24 10
4 h.p. Magneto ROC, clutch, handle starting	£19 10
2¾ h.p. PHELON AND MOORE, two-speeds	£22 10
3 h.p. BROWN, spray, Watawata	£9 10
3½ h.p. Magneto QUADRANT, spring forks	£24 0
3 h.p. SINGER, V belt, high tension magneto	£15 10
2½ h.p. ALLDAYS, light and low, spray	£11 10
3 h.p. BRADBURY, excellent order	£10 0
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
3 h.p. ARIEL, light and low, spray	£9 10
3 h.p. CLYDE, high tension magneto ignition	£14 10
2¾ h.p. KERRY, light and low, spray	£9 10
3¼ h.p. REX, 22in. frame	£7 10
3 h.p. HUMBER, spray, powerful	£10 0
3 h.p. QUADRANT, goes well	£9 10
2¾ h.p. DE DION pattern, spray	£5 10
2¼ h.p. SINGER, trembler coil	£5 5
2 h.p. HAMILTON lightweight, handle-bar control, almost as new	£12 0

Monster List on application. Cash Offers considered.

One Brand New 3½ h.p. REX, just received from makers, and fitted with latest 1910 forks, magneto, carburetter and other 1910 fittings, tools, spares, and accessories £37 10

SUNDRIES.

New 1910 de Luxe Sidecar, detachable fittings	£5 17 6
New 1910 Rigid Art Cane Sidecar, fits right or left	£4 17 6
26×2in. Clincher Ar Tyres	22/-
26×2in. Clipper-Reflex	17/6
28×2in. Clipper-Reflex Covers	17/6
28×2¼in. Clincher Ar	21/-
Brooks Bros. Saddle	12/6
Lycett's Large Size, new	9/6
New 1910 Amac Carburetter, variable jet	27/-
New 20-amp. Fuller Accumulator	11/-
New 10-amp. Premier Accumulator, Humber size	8/6
Rex Pattern Handle-bars, plated	6/6
Swan Neck Seat-pillar	4/2
Matchless Forks, as new 10/6 Tec-Bec	10/6
Simplex 10/6 XL-All	10/6
Rushmore Pattern Lamps, large generator, mirror lens	15/11
Hollow Belt Drills, the best	1/6
"Forward" Detachable and Adjustable Belt Fasteners	1/6
Double Twist Horns	4/6
Three-note Horns, large size	7/11
Magneto Cut-out, special type	2/6

MOTOR BICYCLES FOR SALE.

HAMPSTEAD for Bargains.—Heath Street Motor Works, 5, Heath St. Tel.: 2678, P.O.

HAMPSTEAD.—3½h.p. Quadrant, magneto, handle-bar control, splendid order; £18; all accessories.

HAMPSTEAD.—2¼h.p. vertical 1908 Minerva, splendid condition, with all accessories; £11.

HAMPSTEAD.—3½h.p. Triumph, 1909, splendid condition, with all accessories; bargain, £35.

HAMPSTEAD.—1910 2¼h.p. two-speed F.N.'s; £40 no extra for easy payments.

HAMPSTEAD.—1910 Rexes, all models in stock; no extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; exchange or gradual payments taken; no extra.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4¼h.p., late model, splendid condition, all accessories; £20, special bargain.

HAMPSTEAD.—F.N., 4¼h.p., latest model, handle bar control, condition splendid, with accessories £24.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD.—2¼h.p. 1910 F.N., almost new, with accessories; £33, special bargain.

HAMPSTEAD.—3½h.p. 1909 Minerva, magneto, and spring forks, all accessories; £25.

HAMPSTEAD for Moto-Reve Model A.; in stock; no waiting; no extra for easy payments.

HAMPSTEAD for latest 1910 6h.p. 4-cyl. F.N.; now in stock.

HAMPSTEAD.—1910 3½h.p. two-speed P. and M., as new; £50.

HAMPSTEAD.—1909 3½h.p. free engine Triumph, in splendid condition, all accessories.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexs, Humber, etc.; exchanges or gradual payments.—Rey, 5, Heath St. Tel.: 2678 P.O., Hampstead.

DE DION, splendid condition, h.b. control, all accessories; £14, or offer.—Burnett, 54, Alexandra Rd., N.

6h.p. J.A.P., twin, good condition; £7, or offer.—Seen at Harvey, Hudson and Co., High Ro., South Woodford.

3h.p. Fafnir, Chater-Lea frame, new 3in. Dermatine belt, running order; £11.—Godfrey, Builder, Seaford.

N. S.U., 4h.p., twin, Bosch magneto, footboards, 24in. wheels; £15.—Ashton, 9, Upper Station Rd., Bexhill.

FAFNIR, 3½h.p., Chater-Lea, with sidecar; £14 14s.; splendid condition; trial any time.—29, Acre Lane, Brixton.

J.A.P., 2½h.p., almost new, with accessories; a bargain, £10.—T. Stevens, 1, Hide Place, Vincent Sq., Westminster.

F.N., 2¼h.p., two-speed, 1910 lightweight; £32, run 300 miles only.—12, Collingbourne Rd., Shepherd's Bush.

2¾h.p. Minerva, in Chater-Lea frame, perfect condition, extraordinarily low; £10.—Sear, Broadway, South Chingford.

1909 Roc, 4h.p., two-speed, barely ridden 800 miles, unpunctured; £35.—Dessen, 95, Shooters Hill Rd., Blackheath.

1908 2¼h.p. Bradbury, little used, spring forks, tyres excellent; £15; trial evenings by appointment.—Eastbridge, Croydon

N. S.U., 5½h.p., and forecar, twin, magneto, two speeds; £32.—Motor Unionist, 18, St. Jona's Av., Friern Barnet, N.

3½h.p. Centaur, belt drive, B. and B., French grey, 2 good tyres, fast and reliable; £14.—C/o Kearsley, Motorist, Worcester Park.

6h.p. Rex, chain drive, Chater frame, two speeds, good condition, magneto; any trial; £22.—3, Holmesdale Rd., Croydon.

3½h.p. Minerva, re-enamelled grey, spring back and 2 front, Palmer cord, unpunctured, engine perfect; £15.—74, High St., Wimbledon.

3¼h.p. Rex, engine, tyres, belt, etc., perfect order, good machine, complete; £7 10s.—Barnett, St. Agnes, Hook Heath, Woking.

TROW 1909 Motor Cycle, 4½h.p., very powerful, take sidecar any hills; trials given any time; cost £25.—Trow, Balaam St., Plaistow.

MINERVA Lightweight, in thorough riding order, 26in. wheels, two brakes, Brooks saddle; £5 10s.—20, Grecowood Rd., Dalston.

MOTOSACOCHE, perfect condition, spare belt and accumulator, Druid, tyres unscratched, many extras; exchange Douglas, or sell.—P., 87, Addiscombe Rd., Croydon.

Farrar's Motor Works,
Square Road, HALIFAX.

Telephone 919.

3½ h.p. 1909 BROWN, magneto, h.-b. control £24
3½ h.p. 1910 REX "Speed King," soiled £38
3½ h.p. 1910 REX "Tourist," soiled only £45
3¼ h.p. 1910 Twin PREMIER, quite new £45
3½ h.p. MINERVA, magneto, 1910 Amac £24
3 h.p. N.S.U., magneto, h.-b. control £16
6 h.p. 1909 N.S.U., two speeds, magneto, etc. £44
3½ h.p. 1908 REX, magneto, h.-b. control £24
3½ h.p. 1908 REX, extra good £25
3½ h.p. 1909 REX, very fine £32
5-6 h.p. 1908 REX DE LUXE, h.-b. control .. £30
3½ h.p. REX, magneto, h.-b. control £16
3 h.p. CLYDE, M.O.V., magneto £15
2 h.p. QUADRANT, very good £7

BARGAINS IN
1909 REXES. 1909

1909 3½ h.p. Tourist REX £35
1909 5-6 h.p. Twin TOURIST £37
1909 5 h.p. REX DE LUXE, two-speed.. £46
Compare these with 1910 prices.

OTHER GENUINE BARGAINS.

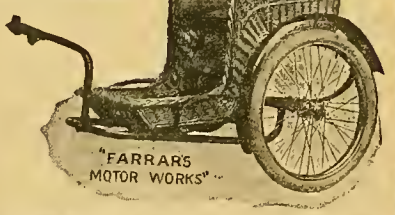
3½ h.p. F.N., magneto, handle-bar control.. £19 0
3½ h.p. N.S.U., magneto, handle-bar control £19 0
3½ h.p. 1909 REX Tourist £29 0
5-6 h.p. Twin REX, magneto..... £20 0
6 h.p. Twin REX, spring forks, 26" wheels £16 10
6 h.p. Twin REX and Sidecar £20 0
3 h.p. VINDEC, magneto, H.B. control.... £18 0
1910 3½ h.p. PREMIER, twin-cylinder £45 0
3½ h.p. REX, M.O.V. spray £10 10
3½ h.p. 1906 REX, M.O.V., spring forks .. £14 0
1908 N.S.U. Lightweight, Bosch magneto .. £18 0

CARS, TRICARS, &c.

8 h.p. BEAUFORT Car, four-seater £40 0
5½ h.p. OTAV Car, 1909 model..... £50 0

6 h.p. REX LITETTE Tricar, water-cooled, two speeds, £35.

FARRAR'S HALIFAX SIDECARS.



Owing to the continued advance in tyres, we shall shortly increase the prices of these splendid sidecars. **Be wise, and order now.** Delivery from stock to fit Triumph, Rex, N.S.U., P. and M., etc.
£4 17s. 6d. complete with best tyres.
Twelve months' guarantee. Discount to the trade.

MISCELLANEOUS BARGAINS.

6 h.p. Water-cooled Engine, good £6 0
3½ h.p. Fafnir Water-cooled Engine £4 0
Tricar Radiator, very good 35/-
Forecar Attachment, 26in. wheels..... £3 0
8 h.p. Twin Rexette Engine, two speeds .. £12 0
Second-hand Looguemare, Minerva, etc 5/6
Second-hand Brown and Barlow and Amac .. 7/6
New Premier High Tension Magnetos 59/6
Clincher Tubes, all sizes ..... post free 5/6
New Sidecar Baskets, upholstered 25/-
New Sidecar Wheels, plated 12/6
Continental Butted Tubes, 26 x 2¼in..... 12/6
Clincher Butted Tubes, 26 x 2¼in..... 10/6
Three-note Fanfare Horns..... 7/6
"Mirrora" Lamps, separate generator 9/6
Kerry "Latchbar" Stand ..... per pair 7/6
Rex pattern Handle-bars, drop ends 5/6
Enamelled Mudguards, with stays, etc. .. 2/11
Belt Punches, latest type 1/3
Sidecar Aprons, with straps and hooks 7/6
Bowden Front Motor Brakes 7/6
Rex pattern Foot Brakes 9/6
WANTED—Good Motor Cycles. Cash waiting.

Farrar's Motor Works,
Square Road, HALIFAX.

Telephone 919.

MOTOR BICYCLES FOR SALE.

AFTER You Have scanned these announcements write to, or call on, Pullman Bros., motor engineers, London Rd., Norbury, for particulars of some mounts at really marvellously low prices.

£15 or near offer, 3½h.p. Phœnix, chain drive, two-speed gear; also Dan Albone baby carrier, good as new, 17s. 6d.—Adams, Rusper.

2¾h.p. Minerva, 26in. wheels, handle-bar control, good tyres, recently overhauled; £12.—32, Burghley Rd., Turnpike Lane, Hornsey.

TRIUMPH, 1909, splendid condition, free engine, Palmer cord tyres, tools, spares, horn, lamp; £43.—K., 107, Uxbridge Row, Ealing.

2½h.p. J.A.P., overhauled, enamelled, new accumulator, belt, and coil, fast and genuine; £9 10s.—Green, 28, Park St., Brighton.

3h.p. De Dion, low, fast, Chater-Lea, headlight, stand, spares, etc., new condition; 10 guineas; stamp, photo.—Penn, 10, Holly Place, Enfield.

1910 Rex, latest, 3½h.p., just delivered; owner unable to take delivery; accept £43.—Taylor, 21a, Store St., Tottenham Court Rd., W.C.

MOTOR Cycles by extended payment without extra charge.—Write particulars, Taylors, 21a, Store St., Tottenham Court Rd., W.C.

3½h.p. Quadrant, spring fork, engine, tyres, etc., as new, Whittle belt, all accessories; £21.—C/o Bouchard, Brentwood Rd., Romford.

3½h.p. Minerva, Phœnix, spring forks, low, takes sidecar; £12 12s.; seen; trial.—168, Wandsworth Rd., London (five minutes from Vauxhall).

DOUGLAS, 1910, with spares; cost £42 10s.; brand new, only ridden 450 miles; buying car; accept best offer.—Leslie Duke, Dilkushi, Littlehampton.

NEW 3½h.p. N.S.U., magneto, exceptional bargain; owner unable to ride; must sell; price £27, nearest offer accepted.—Grey, 85, Uxbridge Row, Ealing.

FAFNIR, 3h.p., long bars, Longnemare, Dermatine, fast, and good hill-climber, recently overhauled; £13, or close offer.—Wicks, 41, Baddow Rd., Chelmsford.

£10 or near offer, 3½h.p. Rex, splendid climber, handle control, adjustable pulley, Hellesen's, Riches; appointment.—Lock, Caxton House, Oxted.

3½h.p. Fafnir, Chater-Lea, spring forks, new Palmer cord, low, long handle-bars, perfect condition; £16; any time after 3 o'clock.—172, Sutherland Av., W.

EAGLES.—Vindec Special, 3½h.p., 1908, Bosch magneto, handle-bar control, Truffault spring forks, adjustable pulley, R.O.M. tyre; £23 10s.

EAGLES.—N.S.U., 4h.p., twin, Bosch magneto, spring forks, 1in. belt, 26 by 2¼ Shamrock rubber studded tyres, two-speed gear and free engine, with Millford sidecar; £34 10s.

EAGLES.—N.S.U., 3½h.p., magneto, spring forks, 1in. belt, two-speed gear and free engine; £26.

EAGLES.—Motosacoche, 1908, excellent condition, all accessories; £15.

EAGLES.—Any of the above can be had on approval, deposit.

EAGLES.—We have a few brand new N.S.U.'s just delivered, finished in latest style: 3h.p., £25; 3½h.p., £31; 6h.p. twins, £40; two-speed gears, £5 15s. extra; exchanges entertained; deferred payments; inspection invited.

EAGLES and Co., High St., Acton.—N.S.U. West London District Agency, 1910 models from stock; liberal allowances for machines in part payment. Tel.: 556 Chiswick.

MOTOSACOCHE, battery ignition, £20, as new; J.A.P., 4h.p., magneto, Palmers, £30; N.S.U., 3h.p., magneto, £18.—Croydon Central Motor Co., Ltd., Croydon.

FOR Sale, motor cycle, 3½h.p. Centaur throughout nearly new tyres, in good running order; 12 guineas, or near offer.—H. Parr, 8, Worple Rd., Wimbledon.

DE DION, 2½h.p., genuine, low seat, long handle-bars, copper tank, footrests, new belt, and Hellesen's battery; £10 10s. — Walker, Ashmount, Loring Rd., Whetstone.

PEUGEOT-INVICTA; £10; through illness, 2½h.p. engine and Palmer tyres, A1, built low, short rider, two accumulators.—Darrynane, Tetherdown, Muswell Hill, London.

F.N., 2¾h.p. engine, just overhauled at cost £4; new Duco lamp, belt, and coil, tyres unscratched; £10 10s., or nearest offer; after 6.0.—Smith, 13, Galpins Rd., Thornton Heath.

£8 10s.—Twin Peugeot, 5h.p., accumulator, 2½in. French Dunlops, hardly scratched, stand, carrier, spares, etc., perfect condition throughout.—Rush, Broadway, Crowborough.

TRIUMPH Motor Cycle, 1906, 3h.p.; given away for £14; new belt, coil, accumulator, and pulley; a real bargain; owner forbidden to ride.—Apply, N. Benton, 18, Emanuel Av., Acton, W.

3h.p. Ascot, trembler coil, accumulator, lamps, horn, voltmeter, non-skid tyres, back and front all in good condition; £11 11s., genuine bargain.—Wright, Greyhound, Waltham Abbey.

£10 10s.—3h.p. Fafnir, Chater-Lea, Palmers, unpuncture, cord back, adjustable pulley, handle-bar control, two accumulators, fine condition, all spares, three belts.—68, Nelgarde Rd., Catford.

COLLIER'S MOTORIE
WESTGATE HALIFAX,

OFFER these SELECTIONS from their STO(

EXCHANGES WANTED.

2 h.p. SINGER, h.b. control to throttle, low, 26in. wheels, and in running order £5
2 h.p. MINERVA, spray, M.O.V., in running order £6
2½ h.p. NON-SUCH, low position, easy starter £8
2¾ h.p. KERRY, 26in. wheels, spray, girders, enamelled green £8
2½ h.p. ALLDAYS, vertical, spray, stand, carrier, spring forks £9 1
3 h.p. DE DION type, vertical, girders, aluminium finish £9 1
2¾ h.p. BARTER, low, 26in. wheels, in nice condition, a bargain £9 1
3 h.p. HUMBER, chain-driven, long bars, low seat £9 1
M.M.C., 2½ h.p., vertical, spray, low, good order, nice condition, girders, stand .. £10 0
2½ h.p. MINERVA, very low indeed, 26in. wheels, handle-bar control, and a fast light machine £10 10
BROWN, with 3½ h.p. Main engine, spray carburetter, and footboards .. £10 0
QUADRANT, 3 h.p., large silencer, low seat, engine recently overhauled £10 10
WERNER, 3½ h.p., vertical, spray, 26in. wheels, recently enamelled, used with forecar £10 15
ARIEL, 3 h.p., M.O.V., spray, 26in. wheels, spring seat £12 0
SPECIAL 2¼ h.p. LIGHTWEIGHT, as new, torpedo copper tank, handle-bar control, carrier, valise and stand. JUST YOUR WEIGHT.. £13 15
QUADRANT, 3½ h.p., vertical, spray, 26in. wheels, low, very powerful, good order, magneto, spring forks, late model £27 15
REX, 5-6 h.p., twin, spring forks, h.b. control, low, good £16 5
SINGER, 3 h.p., belt-driven model, good tyres, spray £16 0
MOTOSACOCHE Lightweight, in fine order. 1¼ h.p., magneto..... £27 10
P. & M. Two-speed, very low position, footboards, chain drive..... £22 10

WHY BOTHER WITH BELTS?
The FAMOUS TWIN INDIAN,
CHAIN **Price £57.** DRIVE.

ROC, 4 h.p., M.O.V., magneto, rubber belt, clutch, handle starting, a real bargain £18 15
ROC, 4 h.p., late model, Druids, free engine, new non-skid tyres, magneto ignition, handle-bar control and an honest bargain £25 0
1909 3½ h.p. Tourist REX, standard machine, in very good condition .. £32 0
1909 3½ h.p. Tourist REX, special low machine, 24in. wheels, 1910 Amac carburetter £32 0
1909 4 h.p. N.S.U., not done 800 miles, and as new £29 10
1909 3½ h.p. Speed King REX, drip lubrication, almost new £35 0
1909 Twin two-speed ROC, spring forks, magneto, handle-bar control, M.O.V., 2½in. tyres, grand sidecar machine £44 15

SEND FOR SUNDRIES LIST.
25 per cent. SAVED.

THE MOTOR CYCLE

Vol. 8. No. 374. May 26th, 1910.

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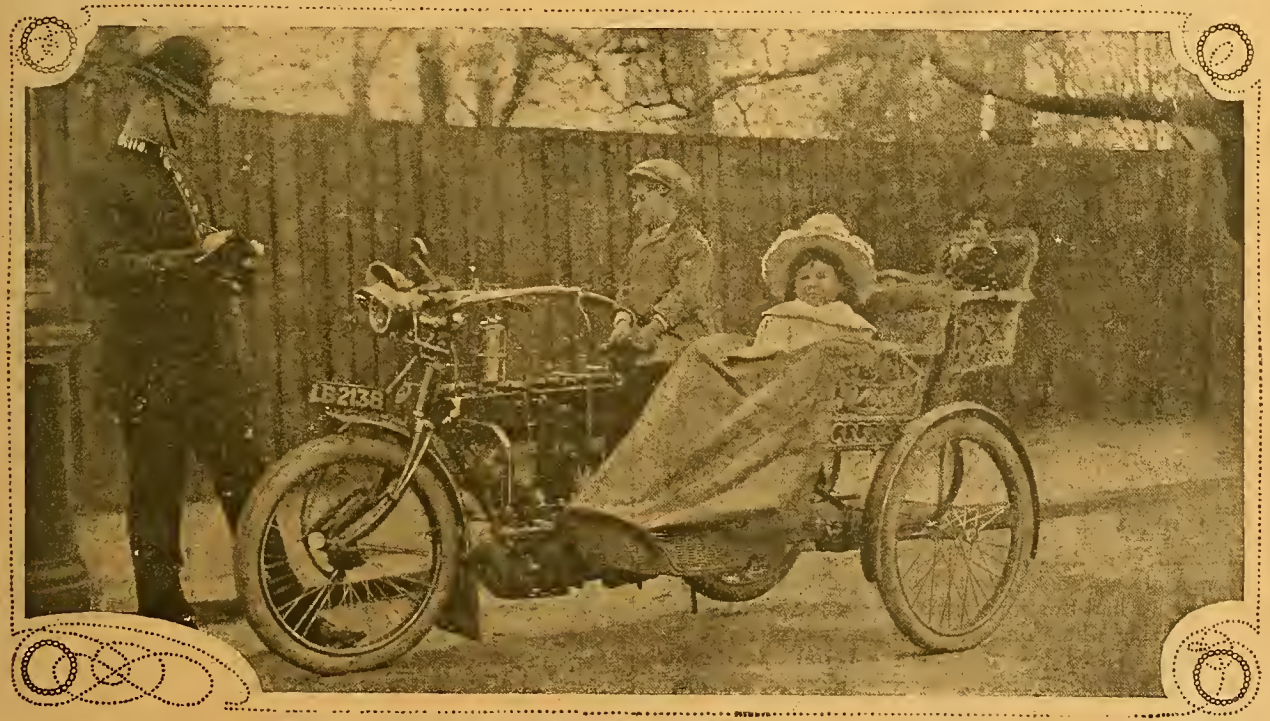
ADDRESS—20, TUDOR STREET, LONDON, E.C.

THE TOURIST TROPHY RACE.

HOW THE RESULTS WILL BE MADE KNOWN TO-DAY.

Last week we briefly mentioned the fact that *The Motor Cycle* had made special arrangements to flash the progress of the T.T. Race to various London and provincial districts. By means of special scoring boards which we have distributed, the positions of the leading competitors lap by lap may be seen. Interest in the race is more pronounced than ever, and we expect that many motor cyclists will consult the scoring boards. The result of the first lap should be known soon after 10.30 a.m. A list of firms exhibiting the telegrams will be found in the inner pages. Next week's issue will contain an exhaustive description of the rac



A CLEAR CASE

Being a narrative of a 4,000 miles tour undertaken by two American motor cyclists—Dr. Webster and Mr. W. C. Chadeayne—embracing the British Isles, France, Switzerland, Germany, Holland, and Belgium.

IN this account of a motor cycle tour through Europe I shall try and confine myself to writing of things that may concern those who are interested in motor cycling, and not go into detail about cathedrals, museums, art galleries, buildings, and the time I spent in attending hospital clinics.

Some four years ago I purchased my first motor cycle to use in making my professional calls and found it easier, quicker, and cheaper than using a horse or car. I soon became so enthusiastic over riding that I made trips to different cities within a radius of two or three hundred miles from my home, wherever the roads were in fair or good condition. Perhaps it was hearing of the fine roads in Europe that started me to plan, a little over a year ago, my tour. I spent innumerable evenings reading and planning such a trip in England, France, Switzerland, Germany, Belgium, Holland, Scotland, and Ireland, and I think by the time I was ready to start I could have passed a better examination in geography, history, art, and architecture than I could have passed in college.

Off the Beaten Track.

Judging from my observations, a large percentage of American tourists in Europe go from one city to another along a generally travelled route, so they do not see the typical, native life. I consider a motor cycle the ideal way of touring. It was not necessary for us to consult a time table, but we rode at any time, as far as we desired, and, many times, to out of the way places. The motor cycle as compared to touring with a car is more economical, is easily stored, can go to places that a car cannot go, and is allowed on certain roads that are prohibited to motor cars. Besides, it is able to get through Customs without so much red tape.

Neither Mr. Wm. Chadeayne, of Buffalo, who went with me, nor myself, planned spending much money on the trip, but started out to see all there was to see and have a good time without making an endurance contest of it. Very few times were we charged very high prices as most American tourists. With the exceptions of London, Paris, and a few other large cities we stopped overnight in some tavern or gasthaus in a little village three to six miles from the city we desired to visit the next morning. The accommodation was always good, good plain food, and not only that, but we had the opportunity to see the real native ways of living which one does not see so markedly in the cities. The rates were always better, and then it was only a short ride in the morning to the city to be visited.

The Start from Liverpool.

Upon landing we left all our larger and heavier spare parts with a motor cycle firm to forward if necessary, and carried in the satchels on our luggage carriers the smaller parts and a few clothes. In a trip of this kind it is necessary to have a partner with similar tastes, desires, and disposition, not only for social reasons, but one that can be relied upon in case of emergency. Time and again these qualifications were tested, and we got along most congenially.

Mr. Chadeayne took a Greyhound motor cycle and I a Pierce four-cylinder. We shipped them in one name, and the charge to Liverpool was but five dollars, the rating being upon the cubic foot instead of the weight. Upon landing we had to go through considerable red tape in getting our motor cycles cleared, but there is no duty upon motor cycles taken into Great Britain. Then, before riding them, we had to make several trips to the police headquarters and the Post Office to obtain licences for the machines and also driving licences. These, with the numbers that are required on the front and rear of the motor cycles, cost each of us about £1 10s.

As yet the Americans are far behind the British in motor cycle clothing. We wore a fairly good suit, and then purchased high mackintosh leggings and mackintosh coats that came about three inches above our knees. These protected our clothes not only from the rain and mud (there was more rain than usual in England last summer), but also from oil and dust, so that in a minute's time we could take them off and look fairly respectable in company, in a restaurant, or visiting buildings, etc.

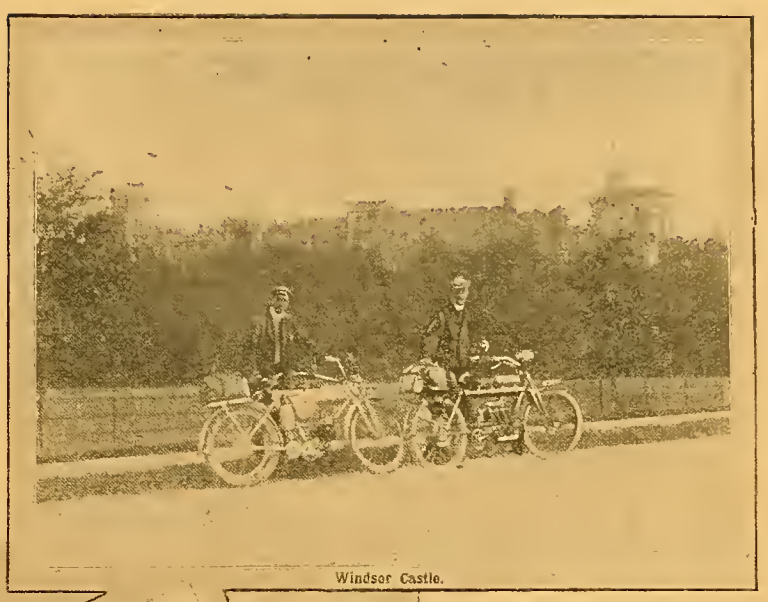
Through the Peak District.

Liverpool has the finest harbour and docks of any city in the world. From here we followed the Manchester Ship Canal to Manchester. This canal is thirty-five miles long, and the large ocean steamers run up to Manchester, making the inland manufacturing city an artificial seaport. Thence we rode to Macclesfield, Buxton, Derby, and Leicester, where we were very pleasantly entertained a few days by friends. While there we saw some of the old pavement put down by the Romans. The roads all through that part are nearly perfect, all the little holes in the country roads are filled, the surface swept, and the turf along the edges trimmed. In many places in the country they are kerbed. All through England they are like a boulevard, being macadamised. They are smooth, seldom straight, but winding, and those that English riders consider bad are better than many of our good, improved roads.

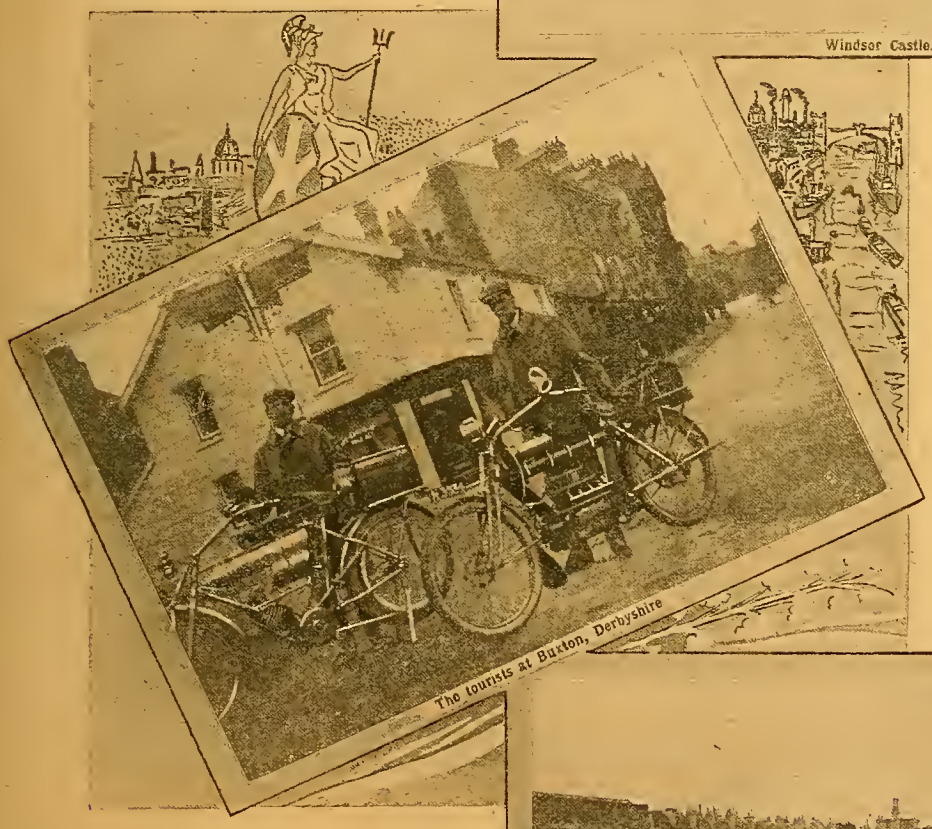
Through Great Britain and the Continent.—

While riding up the "Cat and Fiddle" pass, which is 1,750 feet high, it was raining and we were above the clouds, so could see but a short distance ahead. In order to climb the hill we had to keep our motors going at a pretty fair speed. I came to a "hairpin" turn, my machine skidded and I received a bad fall which skinned my hand and broke my lamp. I was soon on my way, and found Billy at the top of the hill sitting in the rain waiting for me. This reminds me that on our entire trip we had more trouble and spent more time fiddling with accessories, such as lamps, horns, and speedometers, than upon our motor cycles, including the tyres.

Our next ride was to Coventry, the city that at present is noted for the manufacture of bicycles, motor cycles, and motor cars.



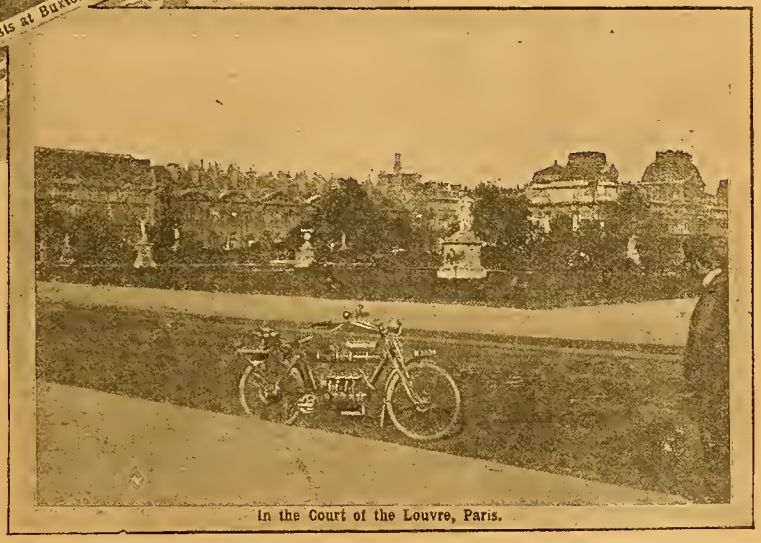
Windsor Castle.



The tourists at Buxton, Derbyshire

to London, a ride of about sixty miles. By taking this zig-zag route from Liverpool to London, we passed through some of the most historical and interesting parts of England. The advantages of motor cycles in London were readily shown, for they enabled us to visit places of interest quickly, not only in the City, but Hampton Court, Windsor Castle, Kew Gardens, and other noted places thirty or forty miles distant. Judging from the interest shown, a motor cycle in the heart of London is an unusual sight. Every day we were riding

Then on to the famous old ruin of Kenilworth Castle, and from there to the town of Warwick, which also has a noted castle. All through this part of the country the scenery is beautiful. While riding over the road to Stratford-on-Avon I had to think of the humorous side of it—how Shakespeare used to plod along that same road on foot and think he was having a fine time, while we were flying along taking things easy. After visiting the historical places of Shakespeare's town we made our way to Oxford, the city of colleges. And then on



In the Court of the Louvre, Paris.

Through Great Britain and the Continent.—

through the central and congested parts of the City on our motors, and had little trouble in getting around. We got about quicker, and saw more than by taking the double-decker trolley cars or sight-seeing autos. We found it advisable in London to join the Auto Cycle Union, which is similar to our Federation of Motor Cyclists, and gave us a great deal of information as to routes, customs, and laws on the Continent, and furnished us papers that greatly aided us in going from one country to another.

From London we rode to the famous Brooklands track. We thought the surface a little rough. I understand the new track at Indianapolis is copied after it.

At Winchester St. Cross Hospital we followed the custom that they have carried out for centuries of giving to all strangers who apply, a dole consisting of a piece of bread and a horn of ale. We drank from the same horn that the late King Edward drank from a few days before. I wish I had a picture of the expression on Billy's face, as it was the first time he ever tasted any kind of liquor. At Southampton we viewed the old walls of the city and also the docks, which have developed rapidly, then sailed for Le Havre, France.

On French Soil.

We arrived in Le Havre about eight o'clock in the morning, and here is where our first trouble started with foreign languages. Knowing that Billy had taken French in one of his college courses, I told him it was up to him to make good in France, while I would be responsible for the German spoken. It is not hard to find English-speaking people in sea-port cities, but, travelling inland as we did, there are many places where the natives seldom see English-speaking people. All through France I discovered that the people could not understand my partner's fluent (?) French, and our fare and accommodation were as limited as his vocabulary. While in England I had thoughtfully provided myself with a pocket tourist translation book. By trial on one desperate occasion I found it useless, and threw the book away. Several times we would be trying to make someone understand what we wanted in our very poor French or German, and the person would speak up and say in very good English, "What is it you want?" Then we did feel small. In one little French town I went to an hotel, and there was a young lady behind the desk. I tried to make her understand in poor French, but without success, that I desired a room. It was only after I drew a picture of a bed that I succeeded. We each had a good laugh, and I got the bed.

In France gasoline is called "essence," in Germany "benzin," while in England it is called petrol. We had very little trouble in obtaining gasoline in any country, but found the price a little higher in some of the little out-of-the-way mountain towns of Switzerland. It was seldom we could get good oil in these small places, so when in the cities we would fill up with a brand we knew to be good, and strap a two or four-litre can on the back of our luggage-carriers. On the Continent the rules of the road are the same as in America, but in the British Isles just the opposite—keep to the left. Several times we were confused by these opposite rules, and had narrow escapes.

Riding beside the Seine.

After some trouble in clearing our machines in Le Havre we started for Paris, 190 kilometres distant, following the picturesque Seine River. We passed through Rouen and Versailles, taking in the palace and the beautiful grounds surrounding it. The roads are fine, straight as an arrow, lined on both sides by rows of trees—a motor cyclist's paradise, and no speed limit enforced. We were stopped at the gates of Paris by guards, who carefully examined our machines and taxed us for the amount of petrol our tanks contained. We were later informed a duty is imposed on all gasoline entering the city, and the price in the city is correspondingly high. We spent six days and nights in Paris, enjoying the sights, and it is certainly a most beautiful and interesting city.

A Visit to the Rheims Flying Ground.

Our next jump was to Rheims, where we spent most of the week watching the much talked about aviation contests. About the best time of our trip was spent in this city. I only wish I knew as much about and took as much interest in aeroplanes then as I do now, for it would have been that much more interesting to me. I hardly felt at the time that we were watching events that will go down in history as these will. Thirty-nine aeroplanes were there, the one of Mr. Glenn Curtiss being the only one from America, and we saw him break the record for ten kilometres. At one time we saw ten aeroplanes in the air—a beautiful as well as a wonderful sight that has never before been seen. When we arrived in Rheims the hotels were filled with thousands of visitors to witness the flights, and while Billy was trying to locate Mr. Curtiss, who is a personal friend of his, I made similar enquiries. A gentleman, who proved to be the British Consul, surprised me by asking in English what I wanted. Here our troubles ended, and high life began. After arranging for the care of our machines we were taken by coach to the American Consul's, where we spent a very pleasant evening. Passes for the aviation grounds were arranged for. The Consul then took us to his very fine residence, where we were royally entertained at dinner, and at about 2 a.m. crawled into the "royal bed," and were calling each other dukes and lords. It is to be remembered that Rheims is the champagne centre of the world. Every detail for our comfort had been arranged. The servants even surprised our shoes by polishing them. Next morning, after a warm bath and a fine breakfast we were furnished with a guide, and taken to the aviation grounds, where we found Mr. Curtiss. A large percentage of the fine champagne consumed is made in Rheims, and we were taken through some of the wine cellars by friends of the Consul. One cellar has eighteen miles of tunnels.

Mountain Climbing on Motor Cycles.

We encountered the first long steep grades in crossing the range of mountains between Besançon and Pontarlier, France, and we were continually riding over mountain roads and passes, up and down grades of from five to twenty-five miles long, the entire length of Switzerland, not knowing what level roads were until we reached the Rhine River. The surface of the roads in Switzerland is fine, and over the principal passes there is a uniform grade, although some of the roads are described better by a remark of Bill's: "It

The Trusty

In the London—Edinburgh Reliability Trial.

10 Triumphs started, 9 finished in schedule time, qualifying for Gold Medals.

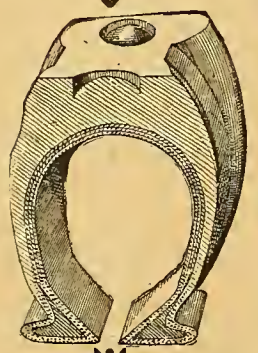
May 21.

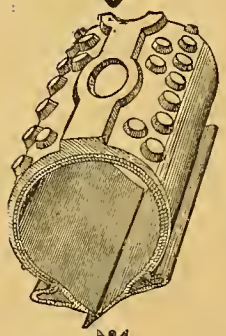
Stockport M.C.C. Hill-Climb: Mr. F. W. Sixsmith, 3½ Triumph, made fastest time of day, beating all Twins.

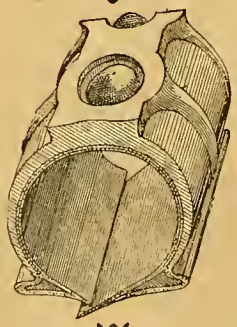
Descriptive Catalogue and Booklet, "Hints and Tips for Triumph Motor Cyclists," post free

Triumph Cycle Co., Ltd., Coventry.

LONDON—4/5, Holborn Viaduct, E.C. GLASGOW—101, Mitchell Street. MANCHESTER—160, Deansgate. LEEDS—4, King Edward Street. DUBLIN (Wholesale only)—62, William St.







LONDON TO EDINBURGH AND BACK

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GOLD MEDAL TYRES

the opportunity of demonstrating their superlative merits.

All the machines fitted with Kempshalls went through the outward journey with absolutely no trouble whatever.

The machines fitted with Kempshalls which made the return journey (800 miles) likewise encountered no tyre troubles whatever.

Read what the Hon. Treasurer of The Motor Cycling Club, Ltd., thinks of Kempshall Tyres:

Hon. Treasurer: R. CREAK DAVIS,
Standisgate, Southwood Road,
New Eltham, S.E.

Dear Sirs, May 17th, 1910.

I am pleased to say I found the tyres quite satisfactory, and they were not touched at all after I left here. I went across London early Friday morning when the roads were very greasy, but had no sign of a slip.

Coming home from York yesterday the roads were very greasy in places, and after Byleswade for fifteen miles they were in a bad state, but, although I drove fairly fast over these stretches I had no suspicion of a side slip.

I can only sum up by saying I am quite satisfied with the tyres and their behaviour.

Yours faithfully,
(Signed) RICHD. CREAK DAVIS.

Write for particulars, post free on request.

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C.D.C.

A24

Through Great Britain and the Continent.—

seems as though some of the hills were so steep they are tipping over backwards." Riding as we did there was occasionally some little thing the matter that would be put off for fixing up until convenient; or, in other words, our machines were not always in the pink of condition for a hill-climbing contest. Even at this, there were few hills or mountain passes that our motors did not take in good style. In fact, several times we passed large touring cars on the mountains that were running on low gear and being assisted by horses hitched in front. While along this line I am going to tell of an incident that happened to me in the middle of Brünig Pass, Switzerland. It was about three o'clock in the afternoon, in the middle of this pass, and, so far as we knew, several miles from any house or person. To make things cheerful there was a drizzling rain. All at once something gave a couple of bangs, and I felt sure either a connecting rod had broken or I had stripped a gear on the shaft. At any rate we could not turn the rear wheel, so the only thing to do was to go after it and fix it. We took the engine out of the frame, and found a nut had worked loose, and had jammed into the fly-wheel and clutch. Let me tell you there was no loafing on that job, for we worked at it together, and rode to the next village before it was very dark. That was certainly my hoodoo day, for I skidded and fell many times, and always bent my pedal cranks, so that I finally purchased a 14in. wrench to use in straightening them instead of tipping the next village blacksmith for the use of his wrench. At one time I skidded over an embankment, and went down about twenty feet with the machine. There was no harm done, but we had hard work in getting the motor cycle on the road again.

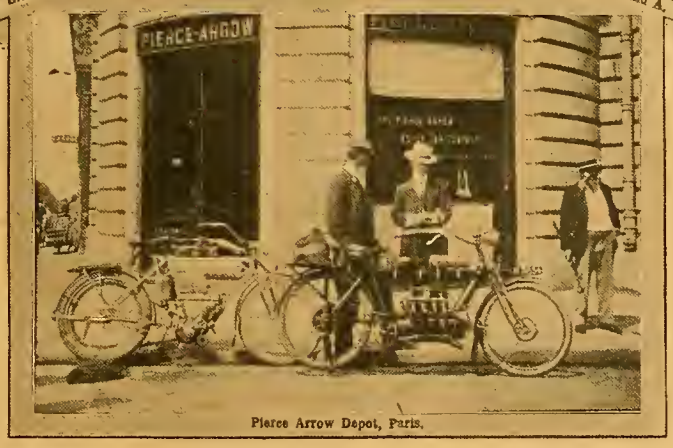
If there is a rider who likes excitement, he should have been with us that day. Many times I had the same sensation I had in a track race I rode in when I skidded on the upper turn, and realised what might happen to me had I been thrown into the outer fence posts. Time and again we rode along passes that were on the edge of a precipice one or two thousand feet nearly straight down, the road, slippery from the rain, winding backwards and forwards around the mountain, so that we could not tell what we might expect to encounter beyond the turn in front of us; and, going up, the machines had to be kept at a fair speed in order to climb the grade. In many places along these cliffs it was impossible to build roads, so tunnelling was resorted to.

(To be concluded next week.)

Glenn Curtiss's biplane at Rheims.

Eiffel Tower, Paris.

In front of the Curtiss biplane shed, Rheims. Left to right: Glenn Curtiss, Fisher and "Slim" (his mechanics), William Chadeayne, and A. M. Webster.



Pierce Arrow Depot, Paris.

THE GREAT MOTORCYCLE ROAD RACES OF HISTORY

BRITAIN'S RECORD IN THEM

by B. H. Davies

Demester (Griffon), the first winner of the International Cup for France in 1904.

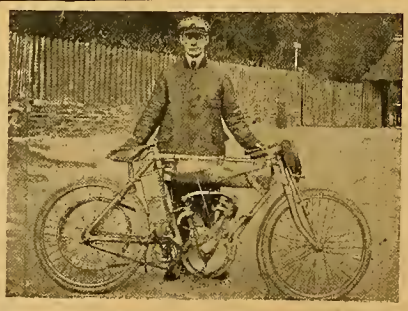
GORGED as our memories are to-day with Stanley Shows, and Edinburgh Runs, and Thousand Mile Trials, and Brooklands and Manx Races, it scarcely seems credible that ten years ago we had no motor cycle clubs or fixtures and very few machines. So recently as 1900 the handful of men who rode and believed in motor bicycles were regarded as dangerous lunatics by the police, as cranks by their brother engineers, and as bounders by society. The chief credit both of producing and booming the motor bicycle must be awarded to France, although to-day she is well behind both England and America. We Britons, according to our national habit, looked phlegmatically on while somebody else did the spade work; also, according to habit; when the motor cycle began to look promising, we suddenly jumped in, took a hand, and began to make things hum; to-day—also according to habit—we are quite at the very topmost twig of the motor cycling tree. But when France was organising motor bicycling events of every conceivable kind, week in and week out, summer and winter, people in England looked askance at the ugly, rattlesome, little abominations which then masqueraded as motor bicycles; neither engineers, capitalists, nor public took any serious interest in them, and if they were occasionally, by dint of sheer importunity, allowed to compete in a trial, they were lumped in with the cars, regarded as intruders, and generally overshadowed by the lumbering four-wheeled automobiles of the day.

It was not until 1902

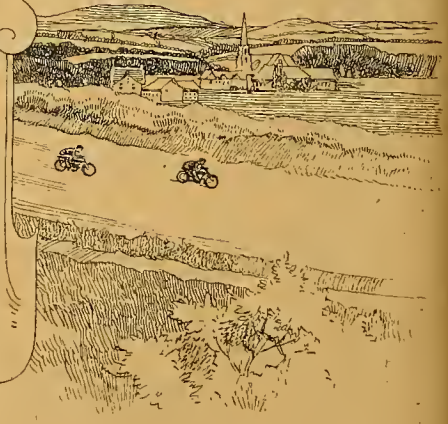
that the motor bicycle gave real promise of its brilliant future. In that year the Automobile Club organised a 650-mile reliability trial for cars, and a few motor bicycles were grudgingly allowed to take part. Two chain-driven Humbers and a belt-driven Ormonde performed with considerable distinction in this trial, especially up the hills. The motor bicycle then first got its teeth into the British public, and has never since let go.

W. Hodgkinson (J.A.P.), one of the three British representatives.

T. Silver (Quadrant), another British competitor.

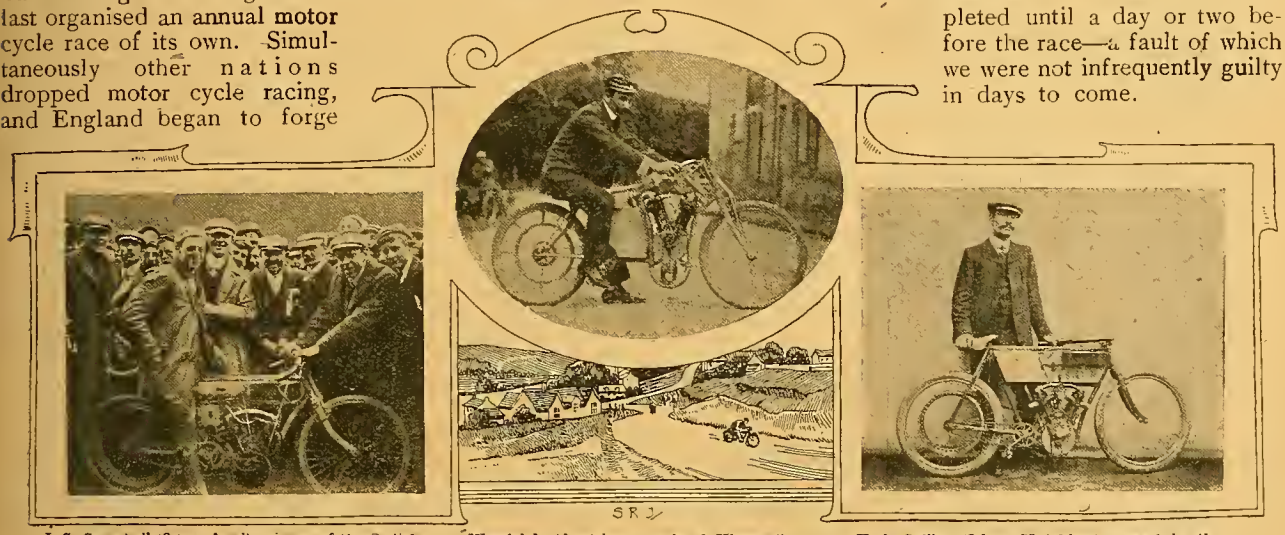


H. Rignold (Lagonda), one of the team representing this country.



The Great Motor Cycle Road Races of History.—

The chief credit of transforming the ugly, shaky, noisy, unreliable, and feeble little machines of 1902 into the splendid types of 1910 must be awarded to the small body of enthusiasts who formed the Auto Cycle Club, as the A.C.U. was then called. Whatever function motor racing may play to-day, it has in the past been the chief factor in moulding the trend of design and in intensifying efficiency. The first motor cars possessed gear wheels which would to-day disgrace a farmyard oilcake grinder in size, material, and weight. The transformation has been accomplished solely by racing, and could not have been accomplished in the same time by anything else. Similarly, it is racing that has made the motor bicycle what it is; and but for the Auto Cycle Club, England would have left motor cycle racing severely alone until quite recent times. When neither the trade nor the public took more than a faint and detached interest in motor cycle racing, the A.C.U. pegged manfully away against tremendous odds, and, aided by a few keen riders and a handful of men with a little money, it kept the ball rolling until England at last organised an annual motor cycle race of its own. Simultaneously other nations dropped motor cycle racing, and England began to forge ahead. America has during recent years displayed an even keener zest for this most educative sport, and as a consequence her industry is now fast overhauling ours. France and Austria, who used to overshadow our crack machines with ridiculous ease, are now toiling hopelessly in the rear—at least as far as racing is concerned.



J. S. Campbell (6 h.p. Ariel), winner of the British Selection Trials of 1905, in the Isle of Man.

Wondrick (Austrian Laurin & Klement), who wrested the cup from France in 1905, averaging 54½ m.p.h.

H. A. Collier (6 h.p. Matchless), second in the British Eliminating Trials. C. B. Franklin was the third member of the team.

1902.

In 1902 motor cycle racing was utterly impossible in England, and even in France the two-wheelers were not sufficiently numerous or important to secure a race to themselves. Race they did, but only as insignificant postscripts to the big car races. A few motor cycles were allowed to start after the last car had departed; they soon overtook the slower and less reliable cars, and for the remainder of their journey were sandwiched amongst the worst car drivers, in terrible dust and uproar, past ditches strewn with wrecked cars and injured men, over roads on which the spectators had encroached to such an extent that the men drove at full speed into an ever opening bottle-neck of human figures.

1903.

England's connection with motor cycle road racing dates from the ill-fated Paris-Madrid Race of 1903, which was abruptly terminated at Bordeaux, as accidents had transformed it into a human holocaust. Six Englishmen entered, but Gordrey's Rex did not appear at the start, so that Arnott on a Werner, Wright and Hacking on Ormondes, and Ball and Leonard on Humbers, alone represented us. Arnott, who is now ranching in British Columbia, managed to obtain permission for the cycles to start last—otherwise they would have been sandwiched among the cars, and some of their riders might have been killed. Arnott was the only Englishman to reach Bordeaux, and though his machine was French he was outclassed for speed. The two Ormondes later performed wonders in the Irish speed trials when properly tuned up; they had really fast 3¼ h.p. engines clipped behind the saddle tube, the rider's legs being protected by wire netting screens. All these machines were outclassed by more powerful French racing machines. One of the Rex features was a surface carburetter, and the Ormonde a flat belt. None were completed until a day or two before the race—a fault of which we were not infrequently guilty in days to come.

1904.

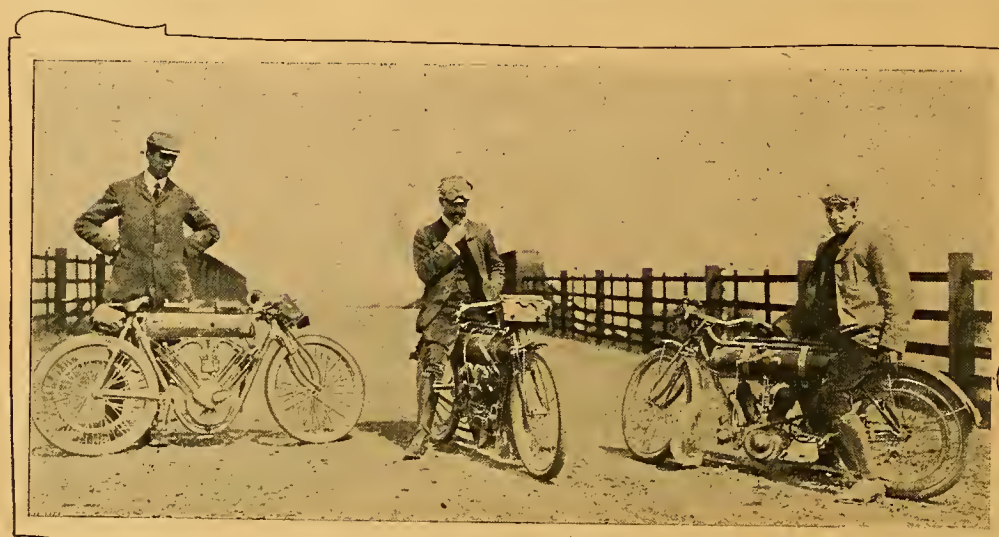
Next year the French Motor Cycle Club took a very important step. The A.C.F. organised only one road race, namely, the eliminating trials for the Gordon-Bennett, for which motor cycles were ineligible. Consequently, a road race confined exclusively to motor bicycles was arranged, under the name of the International Cup. It was open to teams of three riders from each country, and cylinder capacity was unlimited; but the machine complete with pedalling gear was not to weigh more than 110 lbs. The conditions were published in March, the race being dated September 25th; but English firms and riders did not awake to interest till August, and it was not until a month before the race that the A.C.C. at last scraped together a team of three machines, viz., a Lagonda, a J.A.P., and a Quadrant. The firms concerned rushed through a machine apiece, which was simply a light edition of their touring pattern with an untested engine of unusually large dimensions, and the mounts were given to three clever road riders in Silver, Rignold, and Hodgkinson, not one of whom, however,

The Great Motor Cycle Road Races of History.—

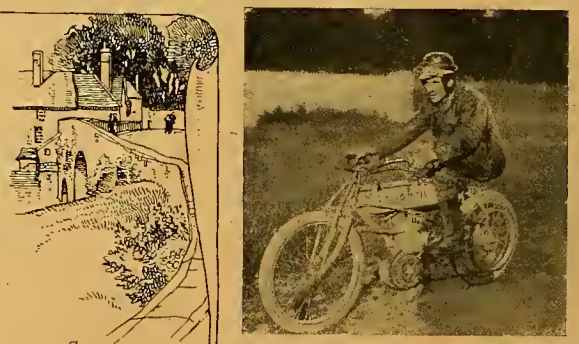
possessed any claim to road racing experience. Neither men nor machines were seriously tested in the race, as all three were soon outed by punctures, in common with the bulk of the non-French competitors. Nails had been plentifully strewn along one side of the road, and the French jockeys alone managed to avoid them. Demester won this race at a speed of about 45 m.p.h., Wondrick (on the Austrian Laurin-Klement) being a bad second.

1905.

The next year marks a new era in road racing from a British point of view. So far, our motor bicycles were among the slowest in the world, and we were the only country which took no interest in racing. The trade began to put these facts together and made a reliable deduction therefrom. So, early in the season the surprised and delighted enthusiasts of the A.C.C. found themselves embarrassed by so many entries for the international team that eliminating trials became inevitable. A Manx course, longer than that now favoured, was secured for May 23rd, the distance was set at about 150 miles, and no fewer than nineteen machines were entered. A modern single-cylinder T.T. machine would make hacks of the entire outfit, though some of them could boast 12 h.p.! Imagine a colossal twin-cylinder engine, slung in a stripped and drilled frame, so that the entire weight was only 110 lbs., of which perhaps 75 lbs. was absorbed by the engine alone on certain machines. I think this entry must be described as the very worst set of motor bicycles ever collected together. The engines were big without being good, and the rest of the machine was pared away to the vanishing point. Not a superfluous inch of wiring could be tolerated, saddle leathers were filigreed out into holes with fretsaws, and the obligatory pedalling gears were scarcely fit for working a toy sewing-machine. Some of the machines were smashed in practice, and others wisely withdrawn. The final starters were Hodgkinson (6 h.p. J.A.P.), C. R. and H. A. Collier (both on 6 h.p. Matchless), Rignold (8 h.p. own make), C. B. Franklin (6 h.p. J.A.P.), J. S. Campbell (6 h.p Ariel), and G. A. Barnes (10 h.p. Barnes). Barnes only started after being pushed off by four men for 400 yards, after which he shot away at 70 m.p.h., and was not seen again. Campbell, H. A. Collier, and Franklin finished in the order named, and so won their places in the team. Their machines were far from reliable, though fast enough so long as they could hold together. In the international race, held on the old thirty-three mile course of the Dourdan road, near Paris, which was circled five times, we were outclassed from the start both in men and machines. Our mounts were inferior, our men short of road racing experience. No one was astonished when our three men were tailed off with two Germans after the first lap. Only Collier was able to keep going any further, and he finished last. In one respect this race was extraordinarily sensational. The French cracks were beaten to the world by Wondrick on a Laurin-Klement. He averaged 54½ m.p.h., and this must rank as the greatest feat on record in motor cycle racing, when we reflect that his machine scaled but 110 lbs., developed 5 h.p., and was fitted with surface carburetter, flat belt, tremendous metal brake levers, and low tension magneto.



The British team in the International Cup Race held in Austria in 1906. The riders are(from left to right) C. B. Franklin, H. A. Collier, and C. R. Collier.



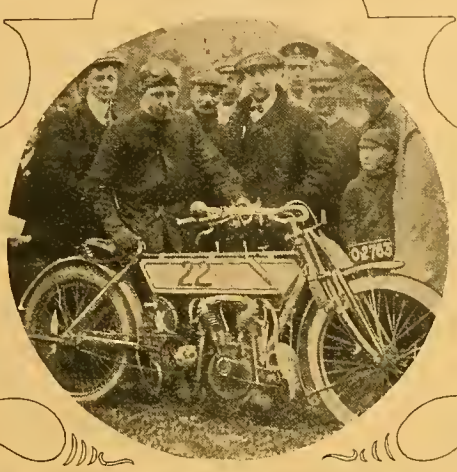
Ed. Nikodem (Austrian Puch machine), successful in the 1906 race for the International Cup. Obruba (Austria) was second and H. A. Collier (England) third.

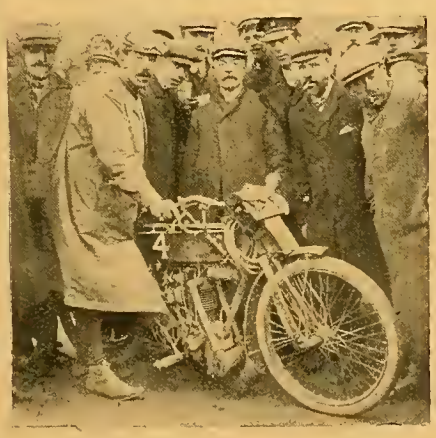
1906.

Matters looked much more hopeful for 1906. The trade was making more money, and could afford to spend more. Our machines were improving fast, and

The Great Motor Cycle Road Races of History.—

several makers and jockeys could now claim a modicum of road racing experience under Continental conditions. But towards April disquieting rumours arose about the cup race. The French, after their manner, lost interest as soon as they got beaten. There are plenty of excellent sportsmen in France, but the octopus of commercialism has always wound its tentacles closely round motoring sports across the Channel, and the trade did not want to hear any more of the cup, especially as Wondrick's win had shifted the venue to Austria. Wondrick's firm also refused to compete. A win would gain them little, a loss would cost them much; moreover, they disliked the conditions, especially the weight limit and the necessity of pedalling gear; they wanted to perfect the roadster mount, not to develop a breed of freaks. However, the race was arranged, though Laurin-Klement and the leading French firms boycotted it. Immediately the A.C.C. found itself in a difficulty. The cup race was dated for July 8th, and the Manx car race week for September—where were the selection trials to be held? Lord Derby came to the rescue with the offer of a four-mile course in Knowsley Park, where the two Colliers fought out an eliminating trial with Butt on a Quadrant, Morewood on a Westlake, and Franklin on a J.A.P. The two dark horses were soon out of it, but C. Collier reeled off twenty-seven laps at 41 m.p.h. and became England's first string, with his brother and Franklin as his supporters. The cup race was run off at Patzau in Austria on July 8th, and in the absence of the leading French celebrities and the Laurin-Klement team, our men certainly seemed to hold a good chance. Only H. A. Collier survived the first lap, and he finished third, with but one man behind him. The regulations were flagrantly ignored by the Austrian riders. One of the rules stated that the course was barred to all but competing machines after the start, but a small host of motor cyclists patrolled it in the reverse direction, carrying tyres and replacements for the Austrian machines. The Marquis de St. Mars, who, with Mr. Mervyn O'Gorman, usually shepherded our teams on the Continent, entered a strong protest, but it was in vain, and so Collier was robbed of the honour of winning the last race for the International Cup. Ed. Nikodem (Austria), riding a twin-cylinder Puch, won, averaging forty-eight miles per hour throughout the 155¼ miles course. Obruba (Austria) was second, and H. A. Collier (England) third.





H. Rem Fowler (Norton - Peugeot), winner of the twin-cylinder class in the first Tourist Trophy Race.

C. R. Collier, the first winner of the Marquis de Mouzilly St. Mars' Tourist Trophy in 1907.

1907.

Nobody was surprised when in 1907 the race fell through altogether after the fiasco of 1906. The expense of competing in a distant continent was enormous, and the chances of fair play for any but the home team were never too good on Continental soil. Yet racing possessed its old value. It remained, and must ever remain, the most searching test and the most popular advertisement; it accelerates development as nothing else can; and in this impasse the A.C.C. did not fail the industry. The marvellous efficiency of our invincible 3½ h.p. roadsters to-day is a direct result of the 1907 policy of the A.C.C. As soon as it knew the International Cup Race was dead the first Tourist Trophy Race was organised, under conditions designed to improve roadster patterns, rather than to foster the production of freaks and monstrosities, such as had disfigured the races for the cup. Fierce discussion raged for months over the detail conditions, and the promoters are hardly to be blamed if they allowed themselves to be influenced by the car racing theories of the A.C.G.B. and I., and introduced the factor of fuel economy now discarded. This factor necessitated two classes, as the same fuel limit would not suit both singles and twins, and the limits were finally fixed at one gallon per ninety miles for singles, and one gallon per seventy-five miles for twins, weight and cylinder capacity being otherwise unlimited, but pedalling gears made compulsory. Technically the policy was sound. It put a premium on the small efficient engine, propelling a light but completely reliable machine. If the opportunities for practice had been greater this basis might have been retained; but in actual practice

The Great Motor Cycle Road Races of History.—

it was found to impose a niggling set of conditions, and compelled makers either to produce a special engine, or to run a standard engine below its full efficiency. The modern basis of a limited cylinder capacity has been simpler and pleasanter to work, and provides a more sporting race. Seventeen singles started, and eight twins, of which eight singles and three twins were officially "placed," the remainder being either hopelessly slow or unreliable. The actual fuel consumption in the race varied from 129 miles per gallon (Brice on a 3½ h.p. Brown) to seventy-seven miles (Wells on a Vindec). The average speeds worked out as follows: C. R. Collier (single-cylinder Matchless), 38.5 m.p.h.; J. Marshall (single-cylinder Triumph), 36.5 m.p.h.; Rem Fowler (twin Norton), 36.2 m.p.h., the latter thus winning the twin-cylinder class. All of these speeds would have been enhanced if the race had been run under cylinder capacity limitations, instead of on a basis of fuel economy. The race provided an excellent spectacle, slightly marred by the confusion due to singles and twins competing simultaneously for one set of awards. Every maker and rider concerned gathered a quantity of valuable experience, and the only dissatisfied participants were the twin-cylinder men, who, by a severe handicap, were represented as inferior in speed to the singles. Some reform of the conditions before 1908 was inevitable.

J. Marshall (½ h.p. Triumph), winner of the second race for the T.T. After the 1908 race, the fuel consumption limit was abandoned and engine capacity restricted instead.

H. Reed (Dot-Peugeot), the fastest competitor in the twin-cylinder class of the 1903 race.

1908.

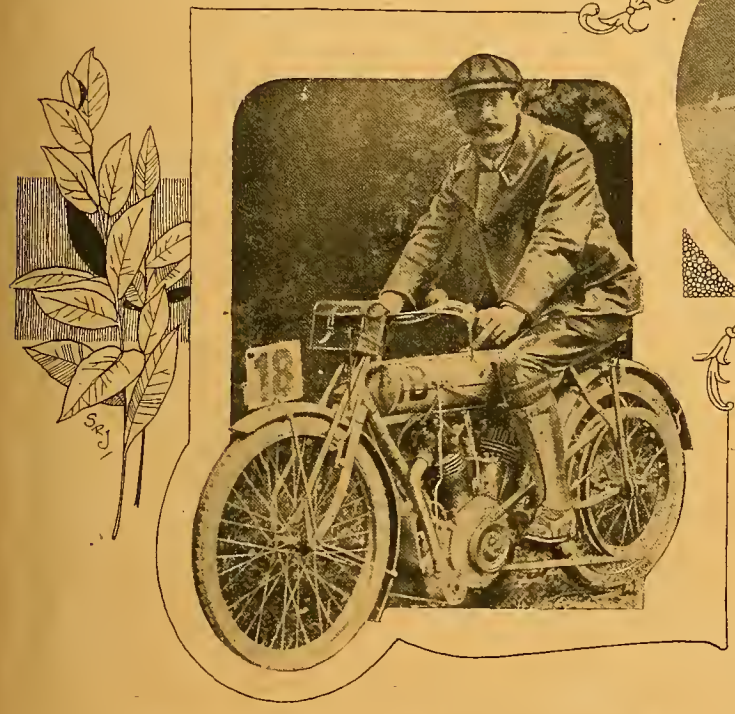
After much discussion pedal assistance was abolished and the petrol limitation was retained for 1908, but the allowance was cut down, singles now having to cover a hundred miles on a gallon, and twins eighty. This necessitated the two separate classes and two sets of awards as before. The event proved tremendously popular, and thirty-six machines actually started out of thirty-seven entries; but the twins proved the more popular, twenty-one coming to the post as against fifteen single-cylinders. Interest was chiefly concentrated on the duel between J. Marshall, a comparatively young Jehu, who had come to the front very rapidly on Triumph machines, and the two veteran Colliers, who as in 1907 elected to ride single-cylinder Matchless machines with J.A.P. engines. In 1907 H. A. Collier had smashed his piston in the ninth round, but his brother had estimated his carburetter adjustment slightly more accurately than Marshall, and beat him by two miles in every hour. In 1908 the chance of H. A. Collier's running the couple close increased the excitement, but he never showed very prominently, and ran out of petrol before the finish. His brother and Marshall fought out a battle royal, and by a turn of fortune's wheel Marshall scored a very popular victory, riding brilliantly, and defeating his more practised rival by 2m. 10s. at an average speed of 40.4 m.p.h. The twins were again beaten for speed, H. Reed registering a 38½ m.p.h. average with a Dot-Peugeot. Twenty machines completed the distance (the slowest averaging nearly 30 m.p.h.), so reliability was clearly on the up grade.

1909.

Last year saw further alterations in the conditions, which were of a popular character, and procured a record entry. The fuel restrictions were abolished, and cubical capacity introduced as the deciding factor, singles being allowed 500 c.c. and twins 750 c.c. The two-stroke engine also made its first appearance. An even more radical alteration was the including of singles and twins in a single race, and, as events proved, the handicap advantage had been transferred to the twins. Previously these machines had been repressed by a harsh fuel limit, but now the race was made a gift for them by an excessive advantage in engine dimensions. This advantage has been reduced for the race of 1910 by the reduction of the twin-cylinder capacity to 670 c.c., but few riders consider

The Great Motor Cycle Road Races of History.—

that the single cylinders have any reasonable hope of victory to-day. The Collier-Marshall duel was terminated in sentiment, as the Colliers naturally elected to ride twins. Marshall put up a magnificent ride as far as the seventh round in an effort to hold his own with the twins. He was second, and only three minutes behind the leader, when trouble overtook him. C. R. Collier was "outed" early on by his belt coming off, but his brother had a rare battle with Lee-Evans, riding the 5 h.p. Indian. Evans led for five laps, and started the sixth round with a two-minute advantage, which he lost when he stopped to fill his tanks. Collier snatched a lead of seventy-eight seconds in this lap, and as his machine ran better and better, while the Indian fell away a trifle, he eventually finished a good winner by four minutes, after averaging close on 50 m.p.h. Lee-Evans averaged 48. After Marshall's retirement, Godfrey on a Rex and Newsome on another Triumph ran each other hard for the third place, which meant the fastest single

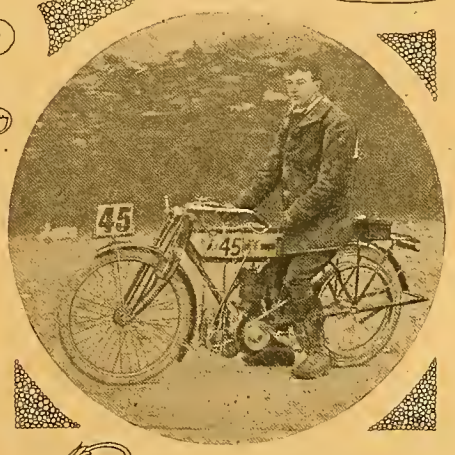


H. A. Collier (5 h.p. Matchless-J.A.P.), winner of the Tourist Trophy in 1909.

in the race, Newsome eventually getting home twenty-one seconds ahead. Collier registered the record lap (18m. 9s.), and Newsome did the best lap time of the single-cylinders (18m. 51s.) Nineteen riders completed the course, but the deficit was due rather to a killing pace than to any lack of reliability. To-day's race promises to be even more exciting, and to demonstrate the attainment of even higher efficiency. Barring accidents, the struggle for the first few places will be grim and desperate.

The T.T. Regulations Discussed.

Upon the events of this year's race the future will largely depend. The regulations remain a matter of somewhat keen controversy. One party assert with truth that with a little more experience we shall be able to balance the respective capacity limits for single and twin so accurately that in future races no prophet will be able to foretell whether a single or a twin will win. A perfect handicap of this design would inevitably produce the most sporting race, and, once settled, should not require varying from year to year. Another view, which I personally favour, considers that this policy will not serve to improve the breed of twins. Amongst a certain class of riders the twin-cylinder is deservedly popular; but the twin-cylinder enthusiast does not want a machine which in efficiency is the bare equal of a 3½ h.p. single, carries more weight, and is twice as complicated. What



W. F. Newsome (3½ h.p. Triumph), who rode the first single-cylinder machine to finish last year.

he wants is an altogether faster and more powerful machine. Whether he wants it for solo or passenger work, he wants it of from 5 to 8 h.p., and he is not concerned as to a few extra pounds of weight. The present T.T. regulations do not cater for such a machine; they rather tend to produce a special type of twin-cylinder, gradually dwindling in horse-power. If under the 1910 regulations the single is again outclassed, a further dwindling in twin-cylinder h.p. will be apparent if the policy is persisted in. Consequently, many people will prefer to see the T.T. split into two separate races—one starting early in the morning and concluding by noon, the other following immediately afterwards. This would avoid the confusion caused in 1907-8 by running two races simultaneously, and would develop each type of machine along independent lines. But the A.C.U. may turn out to be perfectly correct. The market for high-powered twins may gradually decrease, and the small twin of about 4 h.p. may be its solitary survivor. If the sidecar survives, there will be a demand for twins of from 7-8 h.p. Personally, I should welcome the double race for 1911, with a 750 c.c. or 800 c.c. limit for the twins. If in succeeding years a smaller twin seems desirable, the statistics of intervening races will render a return to the single race under an even handicap a simple proposition.

Occasional Comments

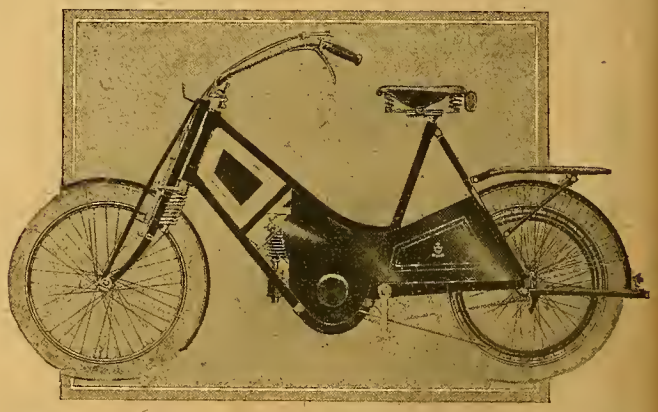
"By Ixion"

Semi-automatic Carburetters.

happen to possess "inside" knowledge that several leading firms have automatic carburetters practically ready for the market, and the unmechanical amateur may pluck up heart of grace in consequence. At this year's shows he will find machines which make far less exhausting demands on his intelligence than those of 1910. He will find carburetters which will enable him to climb hills like Birdlip and Sunrising with no other manipulation than rushing at them on an open throttle, and possibly retarding his spark a notch or so towards the summit; he will no longer fail because he muddles his air lever at a critical corner or patch of grease. Another firm inform me that they do not propose to adopt the automatic principle in its entirety. They are not yet satisfied that they can procure the same maximum efficiency without an adjustable air intake, so they will retain the two-lever control; but they are incorporating an automatic air device which will transfer the onus of the more delicate adjustments from the rider to the engine. Riders who are *au fait* with car hill-climbs will be aware that many sensational cars are fitted with carburetters which can be driven all day long without touching any engine lever save the throttle; yet for sprint purposes these cars are fitted with an extra hand-operated air valve, which enables the cute driver to coax a few more revolutions out of the engine, and also to snatch an even more terrific acceleration from it. The carburetter to which I am now referring is designed on these lines. An engine provided with this vaporiser can be started, speeded up furiously, and driven up precipitous hills without touching any lever but the throttle, nevertheless an air lever is provided. The engine is so little sensitive to this air lever that a muddlesome use of it will never stop the engine, or prevent its taking a bad hill in its stride; yet the cute driver can employ this lever to obtain fractionally better results. Several samples of this new carburetter will figure on racing machines in to-day's T.T. Race, where it ought to be of value. For instance, if a clump of riders essay the tortuous bends on the foothills of Creg Willey and interfere with each other, the hampered men can temporarily ignore the air setting and drive solely on throttle and valve lifter without fear of pulling up. Under such circumstances the rider of a 1909 carburetter might have to operate all his levers like greased lightning, and, if he blundered, might fail to climb the hill. Thus, an automatic carburetter will eliminate the personal factor in driving.

Bravo "Experientia Docet."

I do not know when I have read a letter with greater pleasure than No. 4757. The rider lives in the neighbourhood of Sutton Bank, and points out that, while perhaps few standard touring machines can climb Sutton after they have done a little work and dropped a percentage of "tune," Sutton is nothing of a climb compared with many other ascents in the neighbourhood. In other words, he presses home a strong indictment of single-geared machines. I have always asserted that a man who has once ridden a *good* two-speeder will never ride anything else. The recent craze for free engines is a mere compromise. In my opinion the free engine does not afford half so pleasant a start as walking a machine off on its low gear. It may be easy to balance a machine as it moves off from rest on a clutch; it is in my opinion easier to step calmly and deliberately on board when the machine is already popping along at five miles an hour. It may be easy to dawdle along in thick traffic slipping the clutch with delicate toe pressure; it is considerably simpler to drive on the valve lifter or throttle with a low gear engaged. When we come to steep hills, the emergency low gear makes a start from rest possible on most English road gradients with ease and certainty. I recently borrowed a free engine machine in perfect order, and I made certain experiments on hills with it. I took it to a steep hill with bad corners, which required a slow speed to negotiate with safety. If the clutch were slipped to reduce pace to a comfortable and safe figure, after turning the bend the engine failed to pick up the load with a single gear on the gradient, nor could it be reasonably expected to. I do not know a single argument in favour of the free engine clutch which is not an argument in favour of variable gears, and which does not apply with double force to variable gears. I regard the free engine as a temporary compromise, and I am glad to see from recent patent lists that one or two big firms, who have not so far ostentatiously dabbled in variable gears, have at last donned their thinking caps. I even venture to prophesy that ere long the standard 3½ h.p. machines will fall into two classes—the light, nippy, stripped, sporting T.T. mount, and the genuine go-anywhere tourist, with efficient springing fore and aft, ample weather protection, capacious luggage accommodation, and a change speed gear.



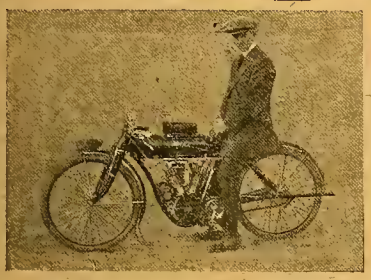
The Hobart Handy Ladies' Motor Bicycle weighing complete 105 lbs. The engine is 70 × 78 mm., fitted with adjustable pulley and free engine operated by a lever on the handle-bar. The tyres are 24 x 2¼. The dressguard and engine cover are made of sheet metal.

COMPETITORS FOR THE T.T.

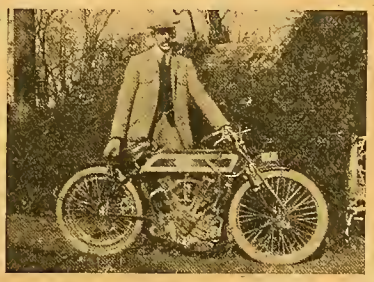
A. J. Sproston, 4 Rex, B. & B., Continentals.

A. J. Moorhouse, 5 Indian, Bosch.

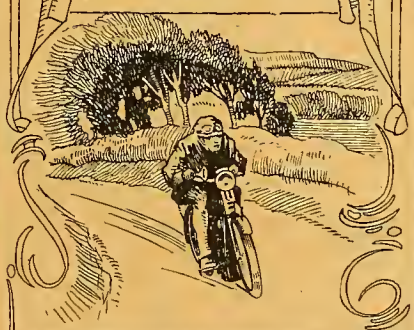
H. A. Collier, 5 Matchless, Longuemare, Hutchinson.

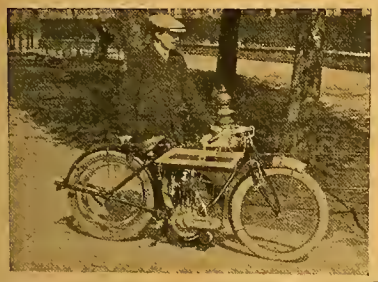


G. Lee Evans, 5 Indian, Bosch.

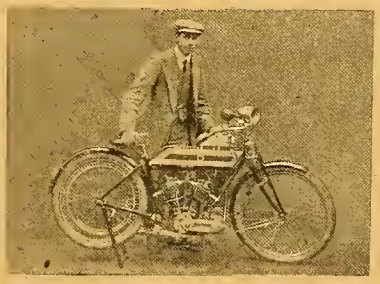


Noel E. Drury, 5 J.A.P., B. & B., Bosch.





W. E. Grange, 3½ Rex, Mackay, Dunlops.



E. F. Baxter, 4 Rex, B. & B., Bosch, Continentals.

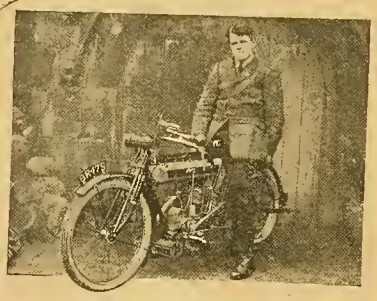
W. O. Bentley, 5 Indian, Bosch.

C. R. Collier, 5 Matchless-J.A.P., Amac, Hutchinson.

H. Martin, 5 J.A.P.-A.S.L., Bosch, Amac, Continentals.

Sydney R Jones

COMPETITORS FOR THE T.T.



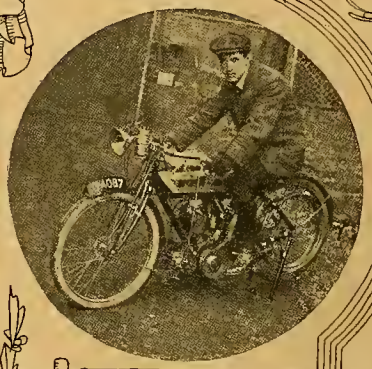
Fred Turvey, 3½ Humber, B. & B., Dunlops.

J. L. Norton, 3½ Norton, B. & B., Simms, Clinchers.

W. H. Groves, 3½ Ariel, B. & B., Bosch.

F. Savory, 3½ Premier, B. & B., Simms, Dunlops.

Howard Smith, 3½ Triumph, Bosch, Dunlops.



H. Rem Fowler, 4 Rex, B. & B., Bosch.

J. R. Alexander, 5 Indian, Bosch, Rom.

J. H. Slaughter, 3½ Ariel, B. & B., Bosch.

P. Weatherilt, 3½ Zenith-Gradua, B. & B., Bosch

F. A. Applebee, 4 Rex, B. & B., Chain-drive, Rom.

QUOCUNQUE JECERIS STABIT

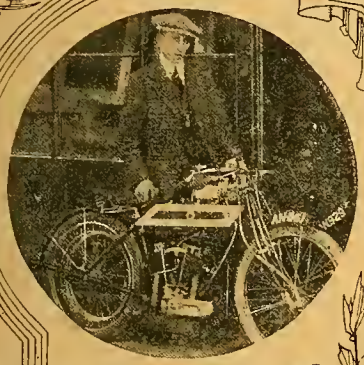
Sydney R. Jones

COMPETITORS FOR THE T.T.

D. R. Clarke, 5 Indian, Bosch.

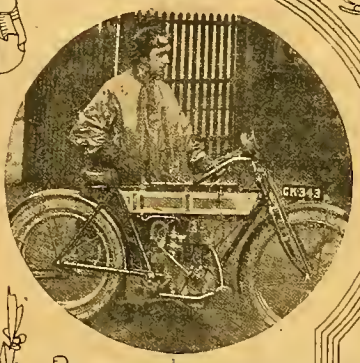
C. E. Murphy, 3½ Triumph, Bosch, Dunlops.

H. V. Colver, 5 Matchless, Longuemare, Hutchinson.



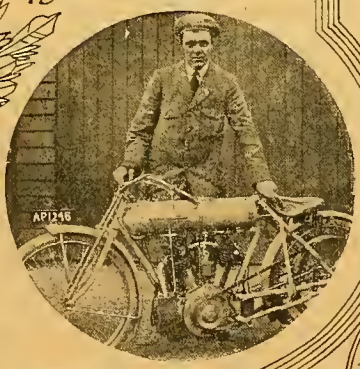
J. R. Woodward, 4 Rex, Bosch.

P. Butler, 5 Dot-J.A.P.

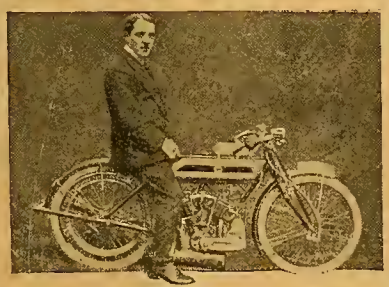


H. Houlding, 3½ Moveo-J.A.P., Amac, Bosch.

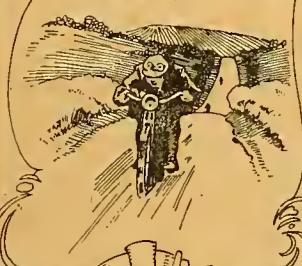
H. J. Scale, Scale-J.A.P. Amao, Bosch.

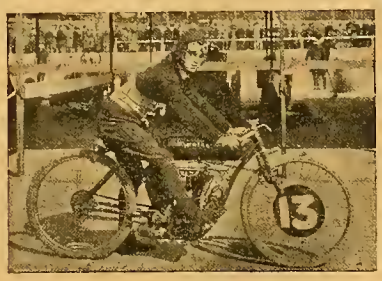


F. W. Dayrell, 5 Bat-J.A.P., Amac, Continental.



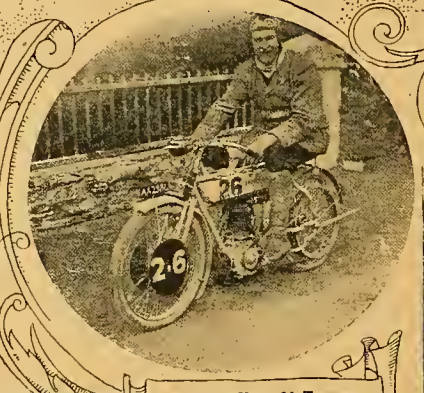
F. C. Bagshaw, 4 Rex, B. & B., Continentals.





A. E. Woodman, 5 Indian, Bosch.

COMPETITORS FOR THE T.T.



F. A. McNab, 3½ Trump, Hellesen, Continentals.

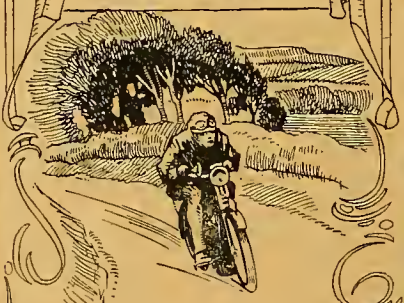
H. Reed, 5 Dot-J.A.P.

A. R. Abbott, 3½ Rex Bosch.

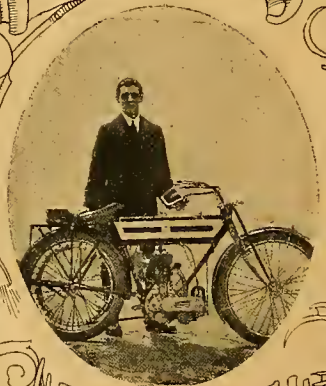
J. B. Franklin, 4 Indian G. and J. B. and B.

H. H. Bowen, 5 Bat, Longuemare, Rom.

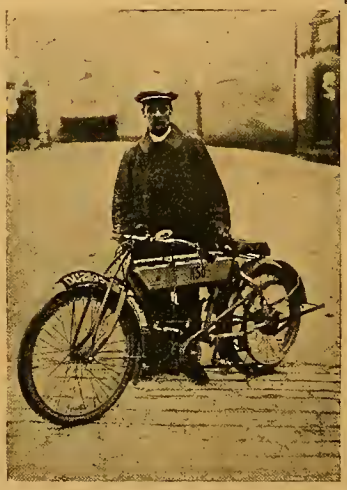
S. C. Perryman, 5 Blumfield.



J. W. Adamson, 3½ Triumph, Bosch, Dunlops



Quinton Smith, 3½ Triumph, Bosch, Dunlops.



W Heaton, 5 N.S.U., Bosch, Continentals.

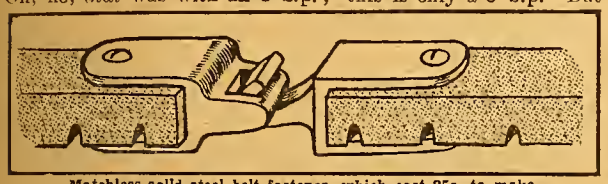
J. Gibson, 3½ Trump, Bosch.

Sydney R. Jones

Lightning Interviews with T.T. Favourites.

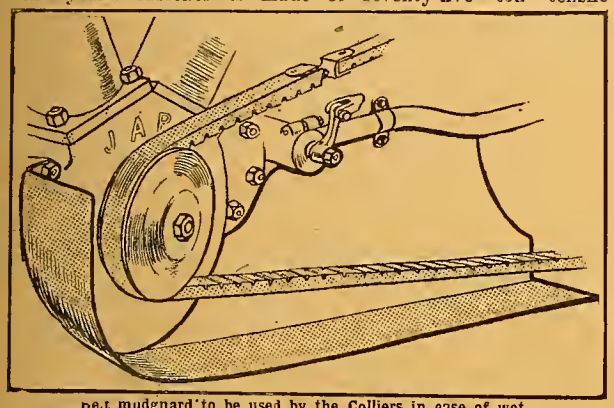
H. A. COLLIER. I found the winner of last year's T.T. Race in the stable of an inn hard by the Tynwald Hill. Here, in company with his brother, C. R. Collier, and H. V. Colver, he was assiduously tuning up his 6 h.p. twin Matchless-J.A.P.

"Yes," he said, in answer to my enquiries, "this is exactly the same machine as I have ridden at Brooklands. I have not altered it in any respect. Eighty miles an hour? Oh, no, *that* was with an 8 h.p.; this is only a 6 h.p. But



Matchless solid steel belt fastener, which cost 25s. to make.

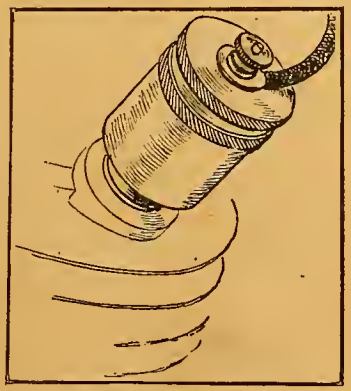
these machines will travel; we shall make them move if they want to pass us. I reckon the race will be won at fifty miles an hour or more this year; the twins especially have come on a lot. I don't see much change in the course. There are some nasty patches of loose stones, but I suppose they are going to be rolled in. Any remarkable points about the machine? Well, there's this belt fastener. Charlie had trouble last year through his fastener breaking, so we made up our minds not to have the same experience again. This year's fastener is made of seventy-five ton tensile



Belt mudguard to be used by the Colliers in case of wet.

strength chrome steel, and cut out of the solid bar; it plays the bear with the milling cutters, but that doesn't matter so long as it's what we want. No, it isn't cheap. I reckon each one costs about 25s.—there's so much labour on them. It's the starting and stopping that smash the ordinary fasteners—they won't stand the snatching of these big twins—but it would take a big engine to do much damage to this sort.

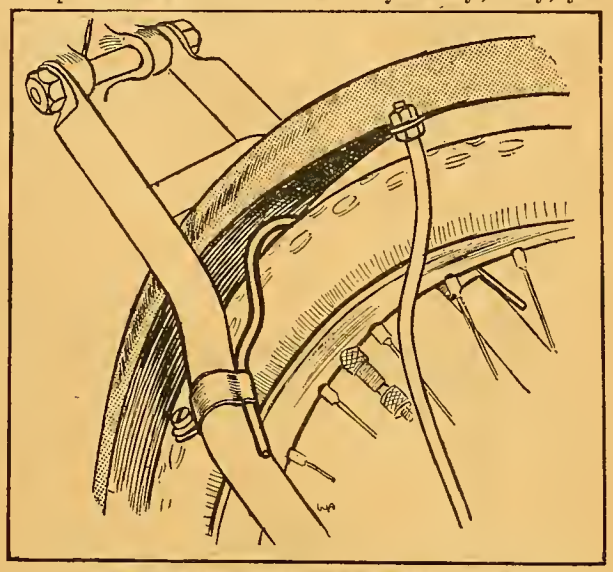
"Everybody's asking me if I'm not afraid of the race being held on a wet day. Well, of course, a lot of the belt-driven machines will start giving trouble, and that'll make it all the easier for the chain-drivers, but I don't expect our bicycles will suffer anything from wet. This shield here keeps all the mud off the belt. You could take the machine through the worst rain and roads, and your belt would never slip an inch. Then, in case it *does* rain, I've got this little fibre sparking plug cover to prevent mud and wet getting thrown on to the front plug and causing 'shorts.' Oh, yes, we make them ourselves—turn them out of the solid—and a nasty job, too. The fibre has a regular grain to it, and you have to cut across it.



A special plug cover to prevent misfiring by wet. (See interview with H. A. Collier, last year's winner.)

"Oh, and there's this nail catcher; it's out of sight and out of the way, but it does its work all right. I really believe it prevents ninety per cent. of the punctures that we'd get otherwise. Still, we've brought over sixteen pairs of tyres, and we can soon get some more if they don't last.

"No, we don't have any difficulty in keeping ourselves fit. See that hill over there—I suppose it's really a mountain—it looks easy enough, doesn't it? Looks as though you could run up it. We all of us tackled it yesterday; why, you



A simple nail catcher to be used by the brothers Collier.

can't walk up it, it's too steep. We were three hours getting to the top, and we had to come down—well, sitting. And we've brought a football this year just to give us something to play with. One of these days we shall have a match, 'Plumstead Matchless' *versus* the 'Tynwald Hillians.'"

Then, running out with his motor bicycle, H. A. Collier jumped into the saddle, and soon I could only hear the distant soothing purr of his J.A.P. engine.

* * *

G. LEE EVANS. The wigwam of the Red Indians is at Peel, and here I found G. Lee Evans, who ran so good a second in the 1909 race. I was lucky enough to catch him between the attractions of a motor fishing boat and a skating rink.

"What do I think about the course, and about my chances, and about the other machines? Well, as a matter of fact, I *don't* think about them. I never think about *anything* when I'm motor cycle racing. It doesn't do. Anyhow, it's not much good you trying to interview *me*; I'm no good at that sort of thing. Oh, well, I'm really no judge of it at present, for I've only been halfway round as yet—we only came over the day before yesterday—but I think it's better and smoother than it was before. This isn't the same machine as I have been using on the track; it has a lower gear, but if I find the engine will pull the machine up the hills on a higher gear I shall fit it. Yes, all the machines are standard in every particular.

"Wet; no, indeed, *we* don't want wet, we want the Indians to win on a fine day. If it was a wet day, people would simply say, 'Oh, you won because your bicycles were chain-driven; if it had been fine you would have been beaten.'

"I don't think there's any sense in trying to save time round the corners; you stand too much chance of losing more seconds than you gain in having to pull yourself straight after you've managed to get round—if you do. It's a case of going a good steady speed and keep on doing it, and the race won't necessarily be won by the fastest machine. Reliability has as much to do with it as pace. I believe that the whole art of motor cycle racing—on the road at all events—

Lightning interviews with T.T. Favourites.—

lies in knowing when to go all out and when to slacken speed."

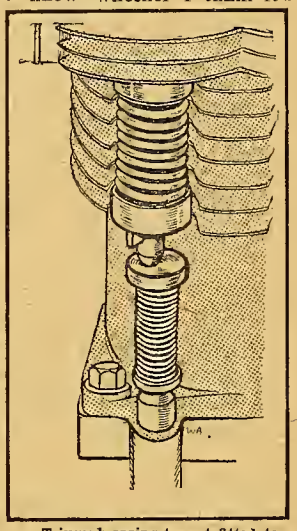
Which sentiment shows *one* reason why Lee Evans has been so successful. Another, he would tell you, is the Indian motor bicycle.

* * *

J. MARSHALL.

Second in the single-cylinder class in 1907 and first in 1908, Marshall has already written his name large on the scroll of T.T. honours.

"The course? Well, I don't know whether I think it's better or worse than last year and the year before. It's certainly easier, and that's one of the points I don't like so much. Take the Ballacraine corner, for instance—well, that's all been banked up, and the result is that that part of the circuit is ever so much easier than it used to be. It doesn't call for half as much skill in going round it as it did before, and I think that's rather a disadvantage. It makes the T.T., which is the only road race, too much like a track race, and it doesn't give a man who is a good road rider any advantage over somebody who goes 'blinding' round all the corners.



Triumph spring tappet fitted to exhaust and inlet valves to prevent bouncing and consequent breakage.

"Still, I think it will be a close race. I don't expect to win it myself; in fact, I don't see how any single-cylinder machine can have a chance to beat the twins. Oh, yes, there's no doubt the Triumphs are faster than they were last year. You see, the 85 mm. × 88 mm. engine was new to us last year, and we didn't know so much about that particular size as we do now. Since then we've done a good deal of experimenting, and the result is that this year's machines are quite three or four miles an hour faster than last year's.

"No, there's nothing new about them, except one little detail; they're just ordinary Triumphs. This spring tappet is the only alteration, or, rather, I should say, it's an addition. It's just a spring under the tappet which acts as a sort of dashpot to the valve, and prevents it hammering. I don't really know whether it makes the engine give any more power; anyhow, it doesn't give any *less*, and I think it's a little quieter. The point is the valve stands a much better chance of lasting, because it's not so likely to knock its head off, and, after all, if you've got a certain amount of speed, reliability is what wins you the race."

* * *

F. A. McNAB.

The phenomenal success which this great rider—he stands some 6ft. 2in., if not more—has achieved on the track has caused him and his machine to be quite a centre of interest. The manner in which he folds himself up and packs himself on to his machine is a masterpiece of specialised anatomical adaptability, which results in his being a firm favourite with the crowd.

"Win? Bless you, no, I don't expect to stand a chance with the twins. What I'm out for is to finish ahead of all the other singles. Still, I shan't go 'blinding' round corners, because I intend to finish somehow or other. That being so, I haven't lightened my bicycle at all, as I hear some competitors have; on the contrary, I've made it a good deal heavier, for the machine I am riding is my Brooklands racer with a much heavier and stronger frame. That back stay from the rear hub to the crank case? Well, I should rather think I have retained it! I believe that the extra rigidity it gives to the frame is more than helpful on greasy roads, and that isn't only my experience by any means. Spring forks? No, thank you, not for me! All right for touring, but no good for racing—at least that's *my* opinion.

"What do I think of the course? Well, of course, it's rather hard for me to give an opinion, because it's my first T.T. road race. I don't think it is any too easy; in fact, just the reverse. I believe a little more banking up at some of the corners would have been an improvement.

"Oh, by the way, there's one point that might interest you. My engine has not only a ball bearing crankshaft, but a ball bearing big end, and I daresay it's the only one of its kind in the race. Then, again, I believe I'm the only rider using dry batteries. As you know, I believe in them."

Practising on the Course.

Although practising commenced on Wednesday last week very few machines turned out on that day; in fact, not more than half the competitors had arrived in the island in time to make the necessary preparations. Thursday morning, however, saw a good muster of riders, the following being out on the course: H. A. Collier, Bennett, Lee Evans, Clarke, Woodman, Bentley, Marshall, Newsome, Creyton, Drury, Colver, C. R. Collier, A. H. Alexander, F. A. Applebee, Myers, Norton, McNab, J. R. Alexander, Philipp, Moorhouse, Scriven, Quentin Smith, Murphy, Crundall, Yates, Baxter, Grange, Abbott, McMinnies, F. W. Applebee, and Brown.

Accident to A. E. Woodman.

The morning was marred by a most regrettable accident to A. E. Woodman, the young New Zealander, who has already won his racing spurs on the Indian machine at Brooklands. The stones laid down on the road between Cronk-y-Voddy and Kirk Michael were still unrolled, and presented a nasty danger spot to all the competitors. It appears that in traversing this loose metal one of Woodman's tyres was punctured. He effected a repair, but it was evidently done too hastily to hold up, and whilst descending the hill and taking a corner a mile past Kirk Michael the tyre—the front one—gave out. The machine plunged towards the left side of the road, where Woodman was thrown off, his right leg striking the wall and being badly fractured. This unfortunate mishap practically put a stop to practice for the day.

Woodman was making his first trip round the course, and cannot have been aware of its trickiness, else he would not have travelled so fast as to cause so grave a disaster.

Poor Woodman has had to pay a cruelly heavy penalty for his misfortune on Thursday. It has been found necessary to amputate his leg.

In the highland parts of the course the roads were firm, dry, and in good condition, but the rain of the previous day had resulted in the road from Peel to Ballacraine being sufficiently greasy to cause some riders a good deal of inconvenience. Amongst the minor incidents were mishaps to Smith, Crundall, and Applebee, but none of them required more than patching with sticking plaster.

Myers and Philipp, whose Scott machines have aroused the liveliest enthusiasm in Douglas, where it is confidently asserted that they are ladies' machines, and that ladies will ride them in the race itself—the practice only being carried out by men riders—did some remarkable speed work, and took the corners in fine style. The former rider had a narrow escape from colliding with some cows which had been allowed to stray on the course. The carelessness of farmers in this respect is causing a good deal of annoyance.

Owing to the King's funeral on Friday practising was entirely suspended.

A Racer with 18in. Wheels.

The machines which have arrived in the island so far show a remarkable freedom from freakishness. Perhaps the most *outré* machine is a 5 h.p. twin-cylinder A.S.L., which has only 18in. wheels. It has, of course, been subjected to a good deal of good-tempered badinage, and has been christened "the motor-propelled roller skate." The Premier and Moveo machines are put up at the Sefton Hotel, Douglas. The former look a very speedy and handsome team. The Moveo team is composed of two twins and one single. These machines have J.A.P. engines and their most notable individuality is that the magneto is situated behind

Practising on the Course.—

the cylinder and level with the cylinder head, where it is driven by an enclosed bevel gear and an inclined shaft.

Crundall and Yates's chain-driven Humbers seem very speedy, and their machines have some very novel features; many regard these riders as dark horses.

Among the private owners Drury and Franklin are thought to stand a good chance, as they have previous acquaintance of the course.

Saturday Morning at Ballacraine Corner.

With the recommencement of practice on Saturday all traces of the greasy wet which Wednesday's rain had produced on some parts of the course were lost, and it was therefore in the pink of condition, with the exception of the patches of stones, which have now been thoroughly rolled in—and quite time, too—but which on Saturday morning were still muddy from the rolling operations.

Nearly all the competitors had arrived in the island on Saturday, and there was accordingly a very large muster of machines for practice. The following riders were on the course: H. A. Collier, Colver, and C. R. Collier (Matchless); Bennett, Lee Evans, Bentley, Franklin, J. R. Alexander, Moorhouse (Indians); Marshall, Newsome, Creyton, Adamson, Quentin Smith, Murphy, McMinnies (Triumphs); Godfrey, Alexander, F. A. Applebee, Rem Fowler, Scriven, Bolton, Baxter, Grange, Bagshaw, Abbott, Woodward, Baxter, and Ellis (Rex); Myers and Philipp (Scotts); Crundall, Yates, Brown (Humbers); Stanley, Jones, Shaw (Premiers); Slaughter, Groves (Ariels); F. W. Applebee, Chase (Centaurs); Sirett, Heaton (N.S.U.'s); Pimm (A.S.L.); Scale (Scale); Rea, Loxham, Holding (Moveos); Norton, Brewster (Nortons); McNab, Gibson (Trump-J.A.P.'s), Reed (Dot); and Blumfield (Blumfield).

There was, unfortunately, one mishap, which has removed a second rider from the race. Quentin Smith, a local competitor, ran into Adamson, whose belt had broken whilst ascending the hill near Kirk Michael; both were thrown, with the result that Quentin Smith had his collar-bone broken, while Adamson got a bruise or two.

It is a pity that some of the competitors desire to make, or renew, their acquaintance with this tricky course at such a high speed, as there is still plenty of time, at the time of writing, to develop speed. Generally speaking, the old hands, those to whom this is their third or fourth T.T., set a remarkable example of care and self-restraint, and one cannot help noticing how quietly and warily they negotiate corners which must now be quite familiar to them.

Fine consistent work has been done by the Matchless stable, those three redoubtable "C's" who have jockeyed so many winners; whilst the neat little twin Premiers have shown that as speed-machines they are a pair very much to be reckoned with. The Indians and Triumphs, as might be expected, uphold their reputations for consistency and speed.

It seems extremely probable that the average speed of last year's winner, viz., 49.002 miles per hour, will be improved on, as several competitors have already beaten the previous figures in practice without pushing their engines to the limit.

On Saturday afternoon a meeting of the Manx Automobile Club was held at Mr. T. Moore's beautiful residence, "Billown," between Ballasalla and Castletown, to which the competitors were invited. Very few, however, turned up, and they missed, therefore, a most delightful afternoon.

I returned from watching the practising on Monday with the settled conviction that, unless the conditions governing the negotiation of Ballacraine corner be radically altered, there will be an outcry against repetition of the race next year—at any rate on the present course. Ballacraine corner consists of two branches of four cross roads which lie on the side of a slight hill, which results in the banking of the road, itself lying in exactly the reverse direction from what it should. To make matters worse, the turn is, if anything, sharper than a right angle, and the road up which the competitors go is completely hidden by the Ballacraine Hotel wall, which forms the actual apex of the angle. Worse still, the road is none too wide, the surface is by no means perfect, and the turn is faced by an ugly wall of rough limestone. Now, there is a great temptation to get round this corner at a good speed, inasmuch as one comes downhill towards it. The descent is admittedly slight, but still a hill. Competitors then turn the corner, and go up a hill with quite a noticeable gradient. In view of the dangerous character of the road in its ordinary state artificial banking fashioned out of planks of wood and having an angle of about 60° and a total length of as many feet has been erected against the stone wall. This, of course, permits the corner to be taken at a slightly higher speed because it virtually gives the road a few feet more width.

Accident to Brewster.

This morning there were at least half a dozen mishaps at Ballacraine, all of which might have been attended with most serious consequences, and one of which escaped being fatal by one of those miraculous instances of good fortune which come so regrettably seldom.

Brewster, on a Norton, in attempting to take the corner at an altogether impossible speed found himself unable to turn sufficiently to get to the artificial banking, and dashed head on into the stone wall. The front of the machine was completely smashed, but the rider fortunately escaped with severe concussion, though at the time of writing the extent of his injuries are not yet known. An inspection of the machine revealed the fact that the brakes were not in the best of order, and further it is said that Brewster's eyesight is not unimpeachable. Neither of these facts, however, ameliorate Ballacraine corner, for men of experience, whose eyesight and brakes are beyond reproach, found themselves in great difficulties from which they were lucky enough to escape with nothing worse than a few bruises and a scratch or two. Accidents will happen even on the best of courses, but still one cannot help feeling that if there are so many minor mishaps in practice, when there is no need to go at full speed, matters may be more serious in the actual race. Talking over the question with several competitors I learnt that none of them relish it, and that most of those I spoke to would like to see it made a control. Several rightly argue that if artificial banking is necessary the race has ceased to retain its true "Tourist" character. The most notable performers during practice on Monday morning were: Bowen (Bat), who got round the course in 19m. 45s.; Stanley (Premier), 19m. 45s.; and H. A. Collier (Matchless) and Eric Myers (Scott), both of whom took 20m. The above times are unofficial, but may be taken as fairly accurate.

W.G.A.

One of the Scotts at full speed on the outskirts of Peel.

Nearing St. John's, the starting and finishing point.

A tricky spot. The bridge and turn near the foot of the hill leading to St. John's.

Current Chat

Lighting-up Times.

Lamp-lighting times at Greenwich for the next seven days are as under:

May 26th	... ...	8.58 p.m.
,, 28th	... ...	9. 0 ,,
,, 30th	... ...	9. 3 ,,
June 2nd	... ...	9. 6 ,,

Excursions to the Isle of Man.

As a result of the paragraph in *The Motor Cycle*, Mr. E. G. Young, of Nottingham, made up a party of fifteen Nottingham motor cyclists to travel to the Isle of Man to witness to-day's race for the Tourist Trophy.

London-Edinburgh Awards.

The committee of the Motor Cycling Club met on Monday evening to consider the awards in connection with the London-Edinburgh and back run. The official list is given on another page of this issue. Our list of survivors in the double journey competition published last week was unfortunately incomplete, the names of J. S. Holroyd (Moto-sacoche), Stanley Webb (Triumph), and W. S. Squire (Quadrant) being omitted.

The T.T. Race—Its Origin.

To-day, when so much interest is being taken in the result of the great race for the Tourist Trophy, it is opportune to point out to our readers that the original suggestion for holding the race emanated from us when proposing the "Sport and Pastime" at the Auto Cycle Club annual dinner, on January 17th, 1906. We said then we hoped that some competition could be arranged on the lines of the Tourist Trophy for motor cycles. (The Tourist Trophy referred to was, of course, the car trophy.) The original suggestion was that the engine dimensions should be limited to 80 × 80 mm., and the weight of the machine 130 lbs. with mudguards and brakes.

The Daily Press Again.

A Doncaster paper referred to the London-Edinburgh run as a "non-stop motor cycle race from Edinburgh to London"—quite an amusing specimen of jump-conclusion news reporting.

T.T. Riders at Brooklands.

A number of Tourist Trophy competitors have entered for the races at Brooklands on Saturday. Immediately after the race they will leave the island for the Weybridge track.

Police Traps.

We have received information of a police trap working between Frimley Green and Farnborough Station, and between the Queen's Hotel, South Farnborough, and a house about 100 yards further along the main road.

French Motor Cyclists and Aviation.

Lucien Lesna, the ex-champion road crack, who met with a very bad smash whilst competing in the Paris-Madrid race on a motor cycle, which resulted in a stiff leg for life through injuring his knee cap, is now experimenting with flying machines at Pau. Another old-timer, Victor Rigal, who was an expert on the motor tricycle, is now a successful aviator.

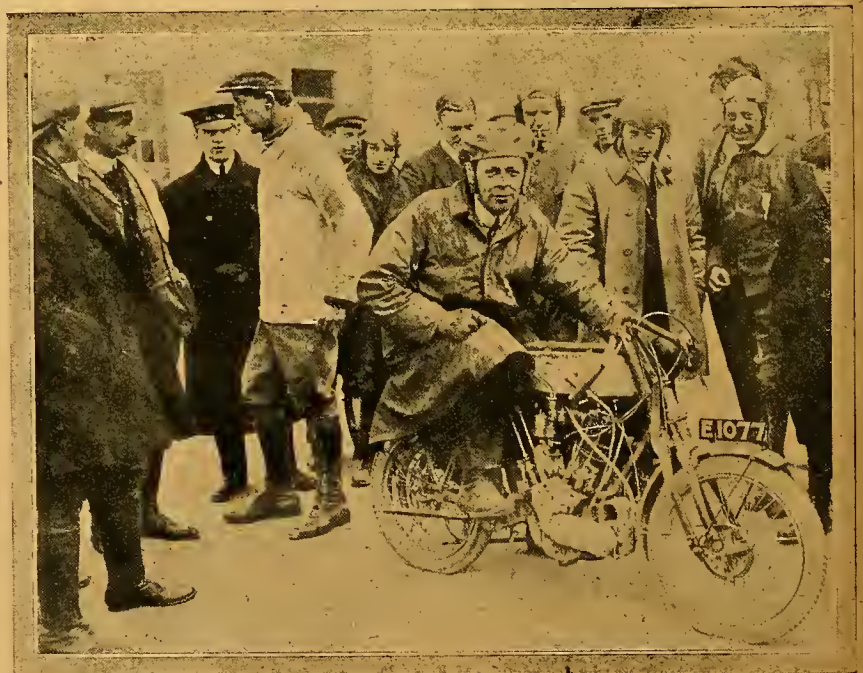
Saturday's Meeting at Brooklands.

Next Saturday the postponed Whit-Monday meeting takes place at Brooklands. After the postponement had been decided upon the entry list was thrown open again, and there are twelve competitors in the May Handicap, and twenty-seven in the Whitsun Handicap.

Fresh Records by Martin.

Harry Martin put up two new records at Glasgow on Saturday last, the occasion being the Celtic F.C. and West of Scotland Harriers' joint sports. Martin rode a 6 h.p. twin Martin-J.A.P. with A.S.L. suspension. The track was Parkhead, and was in excellent condition, and is one with which Martin is quite familiar. The first record to be attacked was that for the three miles made by Martin on this same track two years ago. With his machine in perfect tune, the rider wasted no time in starting, and was soon in front of his previous time, with the result that he brought down his record from 3m. 36⅗s. to 3m. 20⅕s. Later he started on an attempt to improve the existing record for the mile of 1m. 6⅖s., and succeeded in reducing it by 1⅖s. Not satisfied with the margin, he made a further attempt, and cut off another fifth of a second, bringing the record down to 1m. 5⅕s. These figures are not to remain unchallenged however, for on June 4th the Collier brothers are due at Parkhead and will endeavour still further to reduce these times.

PRACTISING ON THE MANX COURSE.



S. Findlater (A.S.L.-J.A.P.), 18in. wheels, B. and B. carburetter, Bosch magneto, Moseley tyres. A number of T.T. competitors may be recognised in the background, including Slaughter, Dayrell, Alexander, and Yates. At the extreme left are F. Straight and G. E. Roberts.

M.C.C. LONDON-EDINBURGH RUN RESULTS.

A COMMITTEE meeting of the Motor Cycling Club was held on Monday evening to consider the awards in connection with the above run at Whitsuntide. The penalty for being fifteen or more minutes ahead of schedule time at any point of the run was disqualification.

Gold Medal Winners.

E. B. Dickson (5 Indian)
E. Gwynne (7 V.S.)
F. Smith (5-6 Clyno)
H. M. Barton (3½ Humber)
Capt. P. J. Harkness (2¼ Enfield)
F. E. Wasling (2¼ Enfield)
P. Philipps (2¾ Douglas)
P. Janson (3½ Bat)
G. L. Fletcher (2¾ Douglas)
W. Hornsby (4 Cheviot, J.A.P.)
W. M. T. Atkinson (3½ Cheviot)
G. Wray (3½ Bradbury)
J. S. Holroyd (1½ Motosacoche)
R. G. Fray (1¾ Motosacoche)
H. Gibson (3½ Bradbury)
C. B. Ferguson (3½ Triumph)
A. T. Stanton (3½ Bradbury)
R. Ellis (5 Rex)
H. Roberts (3½ Phelon and Moore)
W. Pratt (3½ P. and M.)
P. Shaw (3½ Phelon and Moore)
E. Kickham (2¾ Douglas)
H. G. Byng (3½ Phelon and Moore)
L. G. Byng (3½ Phelon and Moore)
T. S. V. Phillip (1½ Motosacoche)
Capt. Sir R. K. Arbuthnot, Bart., R.N. (3½ Triumph)
G. Lee Evans (5 Indian)
S. Wright (3½ Humber)
F. H. Mullett (3½ Triumph)
B. C. Howard (5 V.S.)
W. L. Squire (3½ Quadrant)
B. Allan-Hill (3½ Kerry-Abingdon)
W. Cooper (3½ Bradbury)
J. Eastwood (3½ Bradbury)
S. Webb (3½ Triumph)
P. Platt (3½ Bradbury)
R. M. Brice (3½ Brown)
G. W. Raper (6 N.S.U.)
G. E. Purchase (3½ Triumph)
S. W. Carty (3½ N.S.U.)
L. A. Baddeley (4½ Paddeley)
D. S. Baddeley (6 Baddeley)
Eli Clark (2¾ Douglas)
H. W. Turner (3½ Triumph)
P. E. Tolfree (3½ Matchless)
A. V. Deacock (3 Wanderer)
J. Godsall (6-7 Bat)
A. C. Robbins (3½ Humber)
H. Karslake (4 Dreadnought)
F. A. Hardy (5 V.S.)
R. C. Davis (6 Griffon)
W. C. Wasley (2¾ Douglas)
C. S. Perryman (3½ Ariel)
J. Stevens (2 Wolf)
P. Stevens (3 Wolf)
Dr. C. B. Moss-Blundell (3½ Triumph)
F. C. North (3½ Ariel)
L. Vedy (3½ P. and M.)
P. R. Heighton (3½ Humber)
C. B. Duberly (3½ Ariel)
G. E. Roberts (3½ Rex)
A. G. Peppercorn (3½ Triumph)
G. Brough (3½ Brough)
W. Price (3½ Rex)
G. Jacobs (5 Vindec)
A. Webster (2¾ Handy-Hobart)
A. J. Gilpin (2¼ Enfield)
E. R. Hibbert (5 Rex)
J. H. Slaughter (3½ Ariel)
W. W. Douglas (2¾ Douglas)
F. Watson (3½ Triumph)
H. G. Bell (2¾ F.N.)

PASSENGER MACHINES.

H. Williamson (Rex Sidette)
V. Olsson (J.A.P.)
E. W. Brighten (Chater-Lea, J.A.P.)
W. Lamm (5 V.S.)
E. Frasetti (7 V.S.)
W. Watson (9 Chater-Lea, J.A.P.)
A. H. D'Aeth (7 V.S.)

All the above are sidecars.

Silver Medal Winners.

A. L. Colyer (3½ Humber)
E. T. Newton-Clare (5-6 A.C. tricar)

Bronze Medal Winners.

E. J. Pocock (6 Matchless and sidecar)
W. Chater-Lea (7-9 Chater-Lea and sidecar)

The Double Journey Competition.

Those who completed the double journey of 800 miles, and will receive special gold medals, are as undernoted:

E. B. Dickson	*E. Kickham	*C. B. Duberly
E. Gwynne	S. Wright	*G. Brough
*F. Smith	*Eli Clark	*W. L. Squire
*G. Wray	*A. V. Deacock	*S. Webb
*H. Gibson	G. Jacobs	*A. Webster
J. S. Holroyd.	*H. Karslake	V. Olsson
*P. Philipps.	*A. T. Stanton	E. Frasetti
*G. L. Fletcher	Allan Hill	A. J. Gilpin
H. Roberts	*F. C. North	E. W. Brighten
W. Cooper		

*Signifies competitor for the M.C.C. Challenge Cup.

WINNER OF THE M.C.C. CHALLENGE CUP.

The winner of the Motor Cycling Club Challenge Cup, awarded to the competitor covering the double journey (out and home) closest to schedule time, is G. Brough (3½ h.p. Brough); total variation in time, 10m. 43s.

Harold Karslake (4 h.p. Dreadnought) is the runner-up for the cup with a total variation from schedule time of 16m. 39s.

The committee has also awarded a special gold medal to F. J. Jenkins, whose Rover car carried the travelling marshals. The accuracy of the timing was greatly facilitated by the loan to the club of six Kew certificated watches which were provided by Messrs. Rotherham and Sons, Ltd., of Coventry.

TO-DAY'S TOURIST TROPHY RACE.

Where "The Motor Cycle" Telegrams will be Displayed.

Only a small proportion of the thousands of our readers will be able to witness the Tourist Trophy Race in the Isle of Man, which starts to-day at 10 a.m., and as the daily press takes little or no cognisance of this event we have arranged in the four large centres of the motor cycle industry and pastime, namely, London, Coventry, Birmingham, and Manchester, to display wires which will show the first, second, and third riders at the end of each lap. Thus the progress of the race may be watched at the following points:

LONDON.

E.C.—Bancroftian Co., 49, Bishopsgate Street Within.
Benetfink's, 107, Cheapside.
Hunt's Stores, 104, Newgate Street.
A. W. Gamage, Ltd., Holborn.
Richford and Company, 153, Fleet Street.
W.C.—Service Co., Ltd., 292-293, High Holborn.
Taylor and Co., 21a, Store Street, Tottenham Court Road.
North British Rubber Co., corner of Long Acre and St. Martin's Lane.
W.—Maude's Motor Mart, 136, Great Portland Street.
Selfridge's (Motor Department), Oxford Street.
S.W.—Harrods Stores (Motor Department), Brompton Road.
E.—Eastern Garage, 48, Romford Road, Forest Gate.
S.E.—Collier and Sons, Ltd., 18, Herbert Road, Plumstead.

COVENTRY.

Iliffe and Sons, Ltd., Hertford Street.

BIRMINGHAM.

T. Clayton and Sons, Ltd., 125, New Street.

MANCHESTER.

Triumph Cycle Co.'s Depot, 160, Deansgate.

Practising on the T.T. course. A competitor about to pass another at full speed.

It is interesting to know that the Triumph Company have insured all the private owners riding Triumph motor cycles. The names of the intrepid band of men are, J. W. Adamson, H. Lister Cooper, W. G. McMinnies, Quentin Smith, Howard Smith, and C. E. Murphy.

The Triumph Company will present gold medals to all private owners riding Triumph machines who succeed in finishing the course.

CLUB NEWS.

Doncaster and District M.C.C.

The speed-judging competition on the 16th inst., from Doncaster to Worksop, *viâ* Tickhill, resulted as follows: 1st, J. S. Smith (3 h.p. Bradbury), average difference from schedule 46½s.; 2nd, G. W. Dew (3½ h.p. Triumph), average difference from schedule 62s.

Edinburgh M.C.C.

On Saturday last the Edinburgh Motor Cycling Club held a members' speed contest in the grounds of Whitehall, Rosewell, which were placed at the club's disposal by kind permission of Col. Wardlaw Ramsay, one of the hon. presidents of the club. The surface of the avenue being of the very smoothest, and the day being fine, made the contest a great success. There was a big turnout of spectators.

CLASS I.—One Mile. (For machines with engines of 520 c.c. or under. Flying start.)

	Rider and machine.	m.	s.
1.	P. E. Tolfree (3½ Matchless)	1	16 3/5
2.	N. Macmillan (3½ Scott, two-stroke) ...	1	23 1/5
3.	C. H. Macmillan (3½ Scott, two-stroke)...	1	28 2/5
4.	C. E. Stewart (F.N., four-cylinder) ...	1	29 3/5

CLASS II.—One Mile Novice. (For machines of any capacity. Flying start.)

1.	D. Cairns (5 Rex, twin)	1	15
2.	R. Dixson (3½ Matchless)	1	21 2/5
3.	C. E. Stewart (F.N., four-cylinder) ...	1	25 2/5

Edinburgh M.C.C. Speed Contest at Colonel Wardlaw's estate, Whitehill. Start of the final of the half mile race. On the left A. Macmillan (5 h.p. Bat-J.A.P.), the winner; on the right D. Cairns (5 h.p. Rex Speed King).

CLASS III.—One Mile. (For machines of any capacity. Flying start.)

1.	C. McGregor (3½ Bat)	1	8 1/5
2.	A. Macmillan (Bat, twin)...	1	8 3/5
3.	P. E. Tolfree (3½ Matchless)	1	15
4.	D. Cairns (Rex, twin)	1	16 2/5
5.	N. Macmillan (3½ Scott, two-stroke) ...	1	22 2/5
6.	Colin Macmillan (3½ Scott, two-stroke)	1	25 2/5

CLASS IV.—Flexibility Class. (Same gear to be used both in fast and slow times, slipping clutches barred.)

1. N. Macmillan (3½ Scott, two-stroke).
2. C. H. Macmillan (3½ Scott, two-stroke).
3. R. White, jun. (3½ Triumph).

CLASS V.—Half Mile. (For machines of any capacity. Standing start.)

1. A. Macmillan (Bat, twin).
2. D. Cairns (Rex, twin).

Worcestershire M.C.C.

The opening event takes place on June 9th in the form of a speed-judging competition. W. C. Ward has been elected captain and R. A. N. Hall vice-captain.

York County M.C.C.

At the week-end a hill-climb was held on Kirkstone Pass, the winner being F. Scott, on a 3½ h.p. Triumph. The fastest time was made by F. C. Speke (8 h.p. Speke and Ramsden).

Essex M.C.

Members and friends are asked to take special note of the event of Saturday, May 28th. This will take the form of a blockade running competition with the members of the Bancroft's School Troop of Boy Scouts.

Southern M.C.

The above club held a speed-judging competition last week-end over a nine-mile course on a Surrey road. The winning competitor was only three seconds out, as will be seen by the following results: 1, W. H. Nixon, 3s. slow; 2, H. Billing, 19s. fast; 3, H. W. Toler, 26s. fast.

Leicester and District M.C.C.

The class winners of the hill-climb on the 19th inst. are: Class I. (under 500 c.c.)—S. Briggs (3½ h.p. Triumph).
Class II. (over 500 c.c.)—R. Canham (6 h.p. Matchless).
Class III. (open).—Dr. C. B. Moss Blundell (3½ h.p. T.T. Triumph).

Burnley Victoria M.C.

This club held its first hill-climb on Saturday last in beautiful weather. The hill selected, Salterforth, near Barnoldswick, is one of the steepest in the district. The competition was decided under the A.C.U. formula. There was a large number of motor cycles entered, mostly 1910 patterns. The first event was for motor cycles with engines under 500 c.c. This was won by H. Halstead (3½ h.p. 1909 Triumph). The second was for motor cycles any capacity, and was won on formula by H. Walton (2 h.p. Moto-Rêve), who managed to reach the top by pedalling. The fastest time of the day was made by W. Tennant (5 h.p. V.S.); his time was 51 secs. = 28 miles per hour.

Derby and District M.C.C.

The results of the Whit-Monday reliability trials are given below. The course was 110 miles in length.

1. A. Mitcham (3½ h.p. Rex), cup and gold medal.
2. V. Clark (3½ h.p. Bradbury), silver medal.
3. H. Scarratt (2¾ h.p. Douglas), silver medal.

The following qualified for bronze medals: G. Baker, F. J. Ford, Boissier, Hewitt, Linnell, and Jordan.

Steps are being taken to pick a team for the M.C.C. Inter-club team trial on June 18th.

Birmingham M.C.C.

The above club held its annual Whitsuntide reliability trial to Lincoln and back on Tuesday, the 17th inst. There were twelve entries, and eleven started. All got through to time with the exception of one, whose machine suffered from a broken petrol pipe. Results are as follows:

Rider and machine.	Time lost or gained.	Total marks.	Order.
S. K. Jones (3½ L.M.C.)	10m. ...	940 ...	1
H. D. Jones (3½ New Comet) ...	23m. ...	858½ ...	7
R. Samson (3½ Reg-Samson) ...	46m. ...	664½ ...	10
H. J. Cox (1¾ Singer)	— ...	736 ...	11
W. H. Eggington (3½ Triumph) ...	15m. ...	904½ ...	2
H. J. Woodgate (3¾ Premier) ...	17m. ...	891½ ...	4
F. S. Whitworth (2¼ Enfield) ...	30m. ...	816¼ ...	8
R. W. Duke (3½ Triumph)	17m. ...	894¾ ...	3
D. Arter (3½ James)	21m. ...	873½ ...	5
W. Ryland (7 Matchless)	37m. ...	795½ ...	9
J. Troman (3½ Triumph)	22m. ...	871 ...	6

Each competitor had 1,000 marks allotted at the start, and for every ten seconds late or early at checking places one mark was deducted. The prizes are: First, Sangster Challenge Cup and club gold medal; second, club gold medal. Silver medals to all competitors whose performance is sufficiently meritorious; bronze medals to all completing the double journey in nine and a quarter hours.

Club News.—

Scarborough and District M.C.

In our report of the Speed Trials at Filey, held by the above club on Whit-Monday, the names of the machines ridden by the winners were not mentioned. They were as follows :

Class I.—G. Storey, 2¾ h.p. Minerva.
Class II.—C. H. Pugh, 3½ h.p. Minerva.
Class III.—C. L. Bedford, 3½ h.p. Triumph.
Class IV.—C. L. Bedford, 3½ h.p. Triumph.
Class V.—F. P. Johnston, 7-8 h.p. Matchless-J.A.P.
Class VI.—F. P. Johnston, 7-8 h.p. Matchless-J.A.P.

Motor Cycling Club.

The second race meeting and gymkhana will be held on Brooklands track on Saturday, June 4th. The motor cycle events will be :

Race for ordinary "touring" mounts with single-cylinder engines not exceeding 300 c.c. capacity. For novices only. Handicap. Distance, two laps of the track.

For ordinary "touring" mounts with multi-cylinder engines not exceeding 400 c.c. capacity. For novices only. Handicap. Distance, two laps of the track.

For ordinary "touring" mounts with single-cylinder engines not exceeding 550 c.c. capacity. For novices only. Handicap. Distance, three laps of the track.

For ordinary "touring" mounts with multi-cylinder engines of a cubic capacity between 400 and 1,000 c.c. For novices only. Handicap. Distance, three laps of the track.

For any type of motor bicycle with single-cylinder engine not exceeding 550 c.c. Handicap. Distance, three laps of the track. Open to any member of the club.

For any type of motor bicycle with multi-cylinder engine of a cubic capacity between 400 and 1,000 c.c. Handicap. Distance four laps of the track. Open to any member of the club.

Invitation Race for Silver Cup.—Between riders of leading makes of motor cycles. Distance, three laps of the track. This is to be a sporting race between selected representative drivers of the most popular makes of motor bicycles as offered to the public. The committee invite applications from members who desire to take part in the contest, and will carefully consider every application and select one suitable machine of each recognised make submitted to them.

Hill-climb.—Flying start. Open to any member of the club. On any type of motor bicycle. Handicap.

Richmond and Surbiton M.C.

The annual general meeting was held recently at the residence of Dr. Paul, when it was agreed to change the name of the club from "The Richmond and District Motor Club" to "The Richmond and Surbiton Motor Club." The Hon Sec. presented the accounts and his report for the past year, which was a very favourable one, the club having made great strides, and the prospects for the ensuing year appear to be even more favourable. It was decided to appoint Dr. Paul as the captain of the motor cycle section. There will be four valuable silver challenge cups for competition this year. The Hon. Sec. tendered his resignation owing to pressure of business, but as the members present declined to accept it he agreed to continue. The Marquis de Mouzilly St. Mars was again elected president of the club, and a vote of thanks was passed for his very generous support in the past. Anyone wishing to join the club should communicate with the Hon. Sec., Mr. H. C. King, "Walton House," Surbiton Road, Kingston-on-Thames.

Coventry and Warwickshire M.C.

Entries may now be sent in for the twelve hours run along the Holyhead Road to North Wales, fixed for the 4th prox.

Competitors in the Redditch and District M.C.C. Hill-climbing Competition, the results of which were given on page 427.

West Essex A.C.

The above club issues a monthly club journal which gives particulars of competitions, notices from the hon. secretary, answers to correspondents, etc. The issue for April is the twenty-eighth number which has been circulated among the members, and contains among other features an article entitled "Prominent Members of the Club." The member whose motor cycling career is described in No. 28 is Mr. Victor Baldwin, the hon. sec.

The winner of the hill-climb is R. D. Willett (Humber), whose figure of merit was .0127, which was closely followed by W. E. Gunnett (Triumph) with .0124.

The next competition will be held on June 12th, for the president's trophy. This trial is open to all classes of motor vehicles.

Efforts are being made to hold an inter-club run with the Essex and Walthamstow clubs, and it is suggested that the rendezvous be at Clacton-on-Sea or at Newmarket.

Members of the York County M.C.C. assembled at Roundhay prior to a run to Bylands Abbey.

SOME SUGGESTED HOLIDAY TOURS IN ENGLAND

THE extraordinary manner in which the motor cycle industry has flourished in Britain may be ascribed to the fact that this country of ours is more suited than any other to motor cycle touring. To take them as a whole our roads are better as regards surface than any other country in the civilised world. Naturally, they are not so good that they will not stand improvement, but taking them on the whole, they do not leave a great deal to be desired in this respect. Of course, abroad (in Italy, France, Germany, and Switzerland) in the mountainous portions the gradients are not so steep as those to be met with on many main roads in England, but, generally speaking, the surface is by no means perfect.

In this short article it is proposed to divide the country into three sections—Northern, Southern, and Central. These divide themselves naturally into east and west. Take, for instance, the North.

NORTHERN SECTION.

North-west.

On the west side, Lancaster, being accessible from the thickly populated districts round Liverpool, Manchester, Preston, Bradford, and Leeds, lends itself as a very good starting place for a tour in the most attractive districts which England can offer. Lancaster may truly be said to be "the Western Gate to the North."

Striking due north, we follow the John-o'-Groat's route to Kendal, whence the Lakes are easily reached. Immediately after leaving Kendal one is surrounded by the beautiful scenery at the northern end of Lake Windermere. On through Ambleside and Grasmere, the pretty little lake of Thirlmere, close to Helvellyn (3,118 feet), the second highest mountain in England, and on to Keswick, with Derwentwater on the left, and along the shores of Lake Bassenthwaite to Cockermouth. Here we turn right, and, striking north-east, pass through Bothel to Carlisle, proceeding thence to Brampton, which lies upon an interesting piece of road which extends from Alston to Barnard Castle. This section is well worth remembering, as those who travel by the north-eastern route of the Great North Road can utilise it by branching off at Scotch Corner, and extending the route we have just given from Brampton North to Longtown and to Gretna Green, thus reaching Glasgow without passing through any large towns the whole way from London.

Turning to the right at Barnard Castle we go through Bowes, Brough, Kirkby Stephen, Sedbergh, Kirkby Lonsdale, and back to our starting place—a distance of 213 miles in all. The scenery almost the whole way round is particularly beautiful, and the road as far as Carlisle is good, thereafter it is likely to be rough and hilly, but the scenery is so attractive that the route is well-worth covering. So much for the North-western corner.

North-east.

A place equally accessible for those living in the North-eastern parts of the thickly populated districts of Northern England is Ripon, easily attained from Bradford, Leeds, Wakefield, Doncaster, York, and the surrounding towns. Crossing Leeming Lane shortly after leaving the starting point we reach Thirsk, the headquarters of the Auto Cycle Union when the Sutton Bank hill-climb is held. Those who are anxious to test the hill-climbing powers of their machines will find Sutton Bank on the direct road to Helmsley.

The climb is well worth making, though, of course, difficult, but when once the summit is reached the view over the surrounding country is perfectly magnificent. However, those for whom Sutton Bank proves difficult to cross, the route may be varied by going due south through Thirkleby, Coxwold, Helmsley on to Pickering, where strike south, and go through Malton, and continue on through Great Driffield to Bridlington, whence an excursion to Flamborough Head is well worth while.

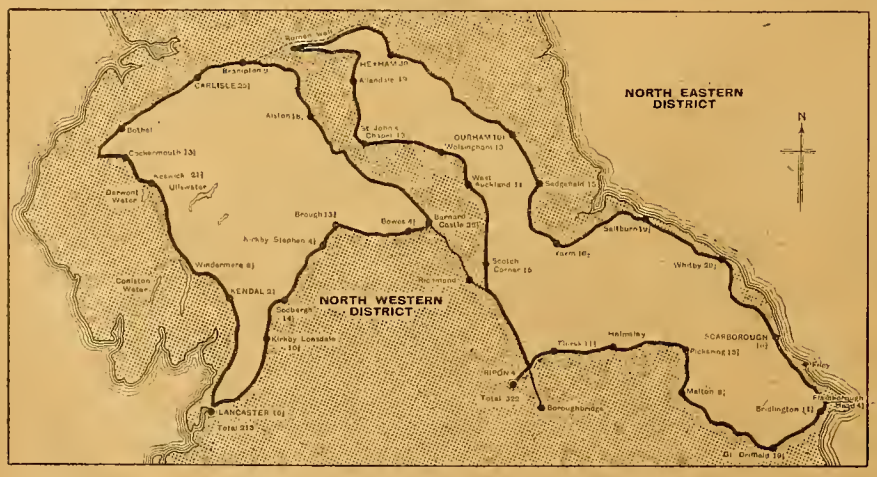
A most beautiful run may then be made along the coast, just skirting Filey and on to Scarborough, one of the most beautiful of Northern watering places, and beyond to Whitby and Saltburn. Shortly after leaving Saltburn the coast is left behind, and we go through Yarm, skirting Stockton, and then straight north to Sedgefield. Follow the main road that leads to Durham, which, as all the world knows, possesses one of the most interesting cathedrals in the country.

A Famous Door Knocker.

An interesting point about Durham Cathedral is that it possesses a famous door knocker, which, if held by a fugitive from justice in mediæval times rendered him in sanctuary, so that the pursuers could not touch him. After Durham we then rapidly leave the colliery district, and, striking north-west, make for Hexham. Here an excursion may be made along the more northern of the two roads to Brampton, which skirts the great Roman Wall made during the Roman occupation to keep out the Picts and Scots. We are now but a few miles from Brampton, mentioned in the other tour. However, we turn eastward at the next important turning on the left, and retrace our steps through Haltwhistle to Allendale, and, striking south, meet the fine moorland and hills to Wolsingham and West Anckland.

The last section of the route will be a severe test for any single geared motor bicycle, but motor cyclists must always remember that in the most beautiful country the steepest hills are encountered. A magnificent run after leaving West Auckland can now be made down Leeming Lane, through Scotch Corner, back to Ripon, whence we started. Leeming Lane is the last trace of the great road made by the Romans up which they sent their garrison to look after the defences of the Wall mentioned previously.

Would that this road were remade along its whole extent, leading as it



Some Suggested Holiday Tours in England.

does due north, it could be made to miss all the populous districts, and bring the motorist to Scotland in the greatest possible comfort, and enable him to maintain a speed impossible in congested districts.

A Through Route to Edinburgh.

Part of the route we have given, namely, from Durham to Hexham, can be utilised as a through route to Edinburgh. It may be joined from West Auckland, striking through a little place called Riding Mill, and thence *viâ* Corbridge to Jedburgh, thus joining the road followed by the competitors in the recent London to Edinburgh run. Unfortunately, however, the whole way from West Auckland to Corbridge, appallingly steep hills are encountered. The connecting link between the two routes we have given lies between Barnard Castle and Scotch Corner. while just off the route is Richmond, a town well worth visiting.

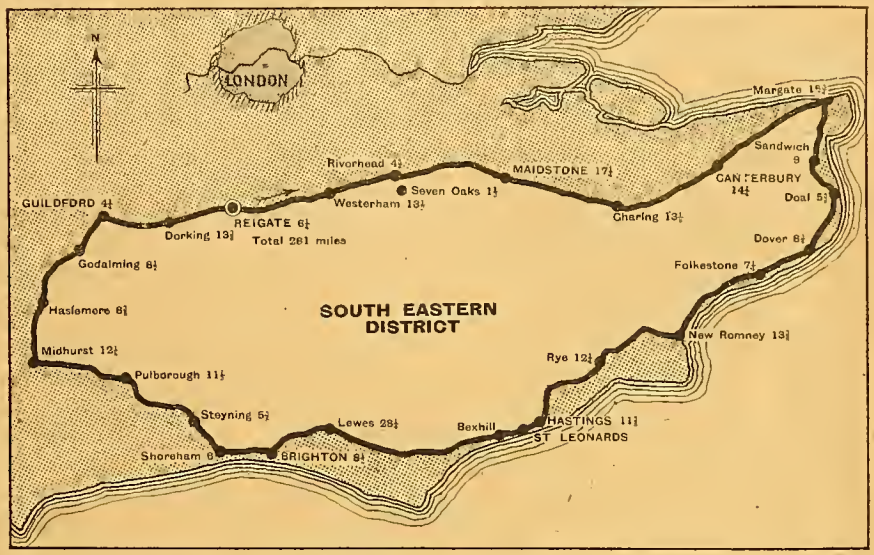
SOUTHERN SECTION.

South-west.

An excellent starting point for a tour in the lovely South-western district of England is Salisbury. The city possesses a cathedral of matchless beauty, the spire of which is the highest in Britain. Leaving the town, we strike off in a south-easterly direction to Romsey, and here turn due south for Lyndhurst, there entering the New Forest. Six and a quarter miles from the latter town we leave the Lymington Road, and turn to the right for Ringwood, then, striking due west, passing through Wimborne (famous for its Minster), an exceedingly beautiful ride follows through Bere Regis to Dorchester, and on through Bridport, along a hilly, but pretty, road through Seaton to Exeter, famous for its Cathedral.

The direct road from Exeter is exceedingly bumpy owing to a motor 'bus service, so we recommend our readers to go through Credition on to Okehampton, where almost adjacent are the Artillery ranges. Launceston is then reached, after encountering the steep hill into the town, and we enter the lovely district over the moors to Bodmin. From Bodmin on, more moorland is traversed, and there is a fine straight road avoiding all big towns past Blue Anchor, Mitchel, and Zelah to Redruth. It was here that the Cornish police "distinguished themselves" last year by instituting a police trap right in the middle of the moor—miles from any human habitation. Their action, however, has not since, we are glad to say, been repeated.

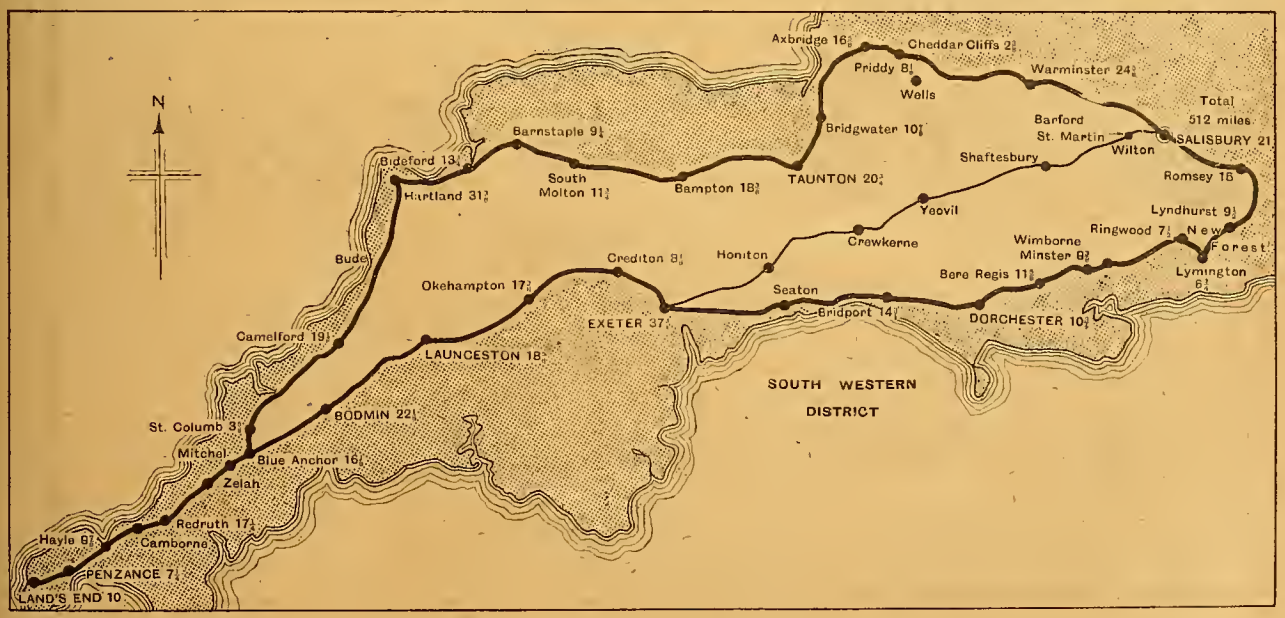
From Redruth, through Camborne and Hayle we pass through the tin mining district—not a very pleasant run for those on holiday bent and in search of good roads and scenery, but, happily, soon traversed.



An Ideal Resting Place.

Penzance, situated on the beautiful Mount's Bay, is an ideal resting place. The climate is mild, and the vegetation semi-tropical. Land's End, which certainly should not be missed, is but a run of ten miles. Here the rocky coast presents a magnificent spectacle. From Penzance we retrace our steps to Blue Anchor, and then strike north to St. Colomb, and on through Camelford, closely passing Bude, a famous West-country seaside place, to Hartland and Bideford, made famous in Macaulay's poem.

The Northern route *viâ* Ilfracombe and Minehead is perhaps the most beautiful, but the route we have given is hilly enough in all conscience, and unless the rider is equipped with a first-class hill-climber, he had better follow the route through Barnstaple, South Molton, and Bampton, which is some-



what easier after Taunton, where follow the Bristol Road to Axbridge, and there turn right to Cheddar Cliffs, an exceedingly beautiful ride. The circuit is completed to Salisbury by passing through Warminster.

If the rider has not time to pass through the New Forest, the journey may be curtailed by going through Shaftesbury, Yeovil, Crewkerne, and Honiton on the direct road to Exeter. After leaving Salisbury, we turn right at the village of Barford St. Martin, a turning which may be very easily missed.

South-east.

Quite a pretty tour, well within reach of the Metropolis, may be obtained, which totals some 261 miles, by starting from Reigate and going due east along the ancient Pilgrims' Way through Westerham and Riverhead to Reigate. From Reigate to Riverhead the road is hilly, but there are no hills which should present any difficulty to a modern motor bicycle. After passing Maidstone, the county town of Kent, we reach Charing, and fourteen and a quarter miles further on the cathedral city of Canterbury.

At Margate we touch the coast, and then strike south to Sandwich, a most interesting old town, well worth visiting. Skirting the coast we go through Deal and Dover, and along a hilly road to Folkestone. All the way along the coast, skirting New Romney, fascinating country is traversed. Hastings and St. Leonards are practically one. Then we pass Bexhill, and on to Lewes, where the rider must be careful, as the police are extremely active.

On entering Brighton it will be advisable to ask for the inland road to Shoreham, as that along the coast is very bumpy. Through Steyning to Pulborough the road extends through ideal English scenery, but here again the police are very much down upon those who exceed the legal limit, while further on, at Midhurst, the bench is said to be one of the most anti-motorist in the kingdom. All along the remainder of the road the greatest caution should be exercised, and especially after traversing Haslemere, when the town of Godalming is reached. Here the slightest breach of the ten-mile limit is rigorously dealt with. Reigate, our starting point, is reached through Guildford and Dorking.

In the above routes the distances are, as far as possible, those given in the "Contour Route Book" (Gall and Inglis), but occasionally, where we have left the beaten track, we have had to rely on other sources, and in these cases the distances are only approximate. The thin line given in the Northern Section denotes those roads which connect the North-eastern and North-western tours.

CENTRAL SECTION.

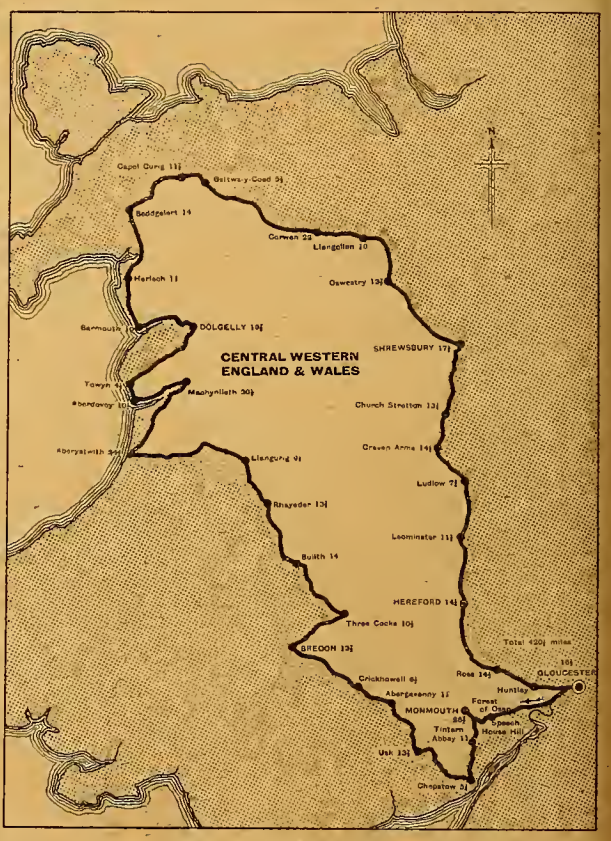
Western England and Wales.

All that section of England which borders on Wales possesses good well-kept roads, and is replete with historical associations. Gloucester, the ancient cathedral city, makes an admirable starting point for a tour. Leaving Gloucester we follow the Severn Valley, and just after Westbury pass through Little Dean, and enter the beautiful Forest of Dean. The road leads into the ancient town of Monmouth, which is well worth a visit. From here we retrace our wheel tracks for a short spell, and, bearing right at the first important road fork, enter the Wye Valley, one of the most beautiful rides in England, and more than half-way to Chepstow pass Tintern Abbey, which, on account of its situation and beauty, is well worth inspection.

Usk, another old-world town, is but a short ride from Chepstow, and but eight miles or so further on we cross the border into Wales, and enter what may be termed the Welsh Lowlands.

All along the valley, through Crickhowell the scenery is very pretty, and the district is known as Talgarth Black Forest. From Brecon the road takes a north-easterly direction to the Three Cocks Inn, an important road junction, where the right-hand road passes through Hay to Leominster. Here, however, we turn sharp left, and proceed to Builth, and thence to Rhayader. At this point, some two or three miles off the road, are two large lakes which supply Birmingham with water.

Here the scenery becomes particularly fine, and after leaving Llangurig, we skirt the southern slopes of Plynlimmon, 2,468 feet. Close by the Wye rises, and not far also from the source of the Severn. Up to Llangurig the road rises steadily till an altitude of 900 feet is reached, and continues to rise till the summit 1,400 feet above sea-level is attained.



At the Dyffryn Castell Hotel the traveller may either follow the main road by Ponterwyd, or go by the Devil's Bridge, a fine run through mountainous and well-wooded country. The rider's choice should depend upon the hill-climbing powers of his mount, as the road to Aberystwyth by the Devil's Bridge is beset with numerous stiff gradients requiring both skill and care.

From Aberystwyth a pretty road extends to Machynlleth, but several stiff gradients are encountered. Before entering the last-named town the river is crossed, and then a turn to the left is taken, bringing the rider on the road to Aberdovey, and once more to the coast.

The sea is kept on the left as far as Towyn, and here the road strikes once more inland, becoming hilly and rather rough, but better near Dolgelly. At Barmouth we strike the coast once more, which we follow to Harlech, where is the famous castle. At Penrhyn, known to the world for its slate quarries, we strike inland, and leave the sea for good, passing through a glorious district to Beddgelert, where is the grave of Gelert, Prince Llewellyn's famous hound.

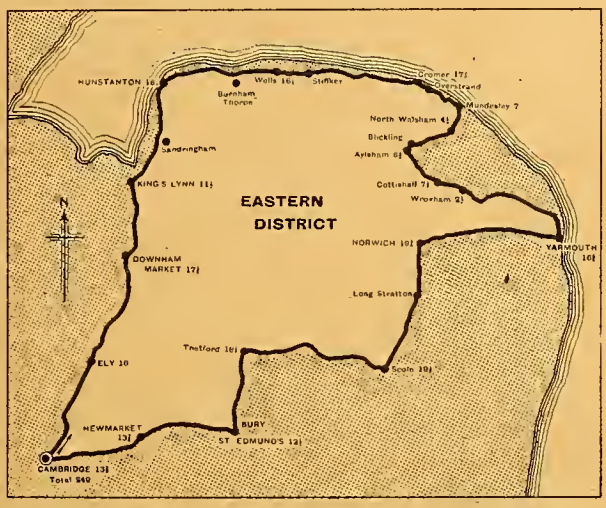
The Highest Mountain in England.

Snowdon, 3,560 feet, the hightest mountain in England and Wales, is seen on the left if the day be clear. At Beddgelert we bear right, and hereafter the right-hand road is aways taken till Capel Curig is reached, where the Holyhead Road is joined. From this point on to Shrewsbury there is no difficulty in finding the way, as the road is signposted "To London" by the Royal Automobile Club. The surface is, for the most part, good, though apt to be motor worn in places. Telford's famous road is beautifully graded, so from Capel Curig onwards the rider need not fear the hills. In this section the rider passes through Bettws-y-Coed with its famous Swallow Falls and Fairy Glen, Llangollen, and Gobowen.

At Shrewsbury the Holyhead Road is left, and thereafter follows a pretty and interesting ride through Church Stretton to Ludlow, a quaint old town, where there are some fine old houses and an interesting old castle, and on to Leominster and the cathedral city of Hereford. From here on to Gloucester the road is excellent and very pretty.

Eastern District.

Eastern England has quite a fascination of its own. The rider must not expect to find beautiful scenery, but the district is intensely interesting, is extremely healthy, bracing, and invigorating, and has some of the finest churches to be seen in the British Isles. Yet another point to be considered is that the yearly rainfall is moderate. On account of its accessibility, and the fact that in itself it is a most interesting place, Cambridge makes an excellent starting point. Our first destination is Ely, a fine run over excellent roads with two fine "all out" stretches.



At the end of the second of these, right in the heart of the Fen country where one least expects it, is an awkward bridge, marked by an ordinary red triangle, but with a special danger signal, so narrow and dangerous is it. After Ely, where the finest cathedral in England is to be seen, the road is not very interesting, but the surface is good. After leaving Littleport, a great place for skating on the rare occasions offered in these islands, we cross the Ouse and follow the meanderings of that river for some time, then suddenly crossing it where least expected.

Beyond Southery we leave the bleak Fenland and enter the county of Norfolk, where the country becomes wooded and the roads good. Entering the village of Denver caution should be exercised, as the approach is made by negotiating two corners, the second of which, skirting the churchyard which forms part of an ellipse, is banked the wrong way. Here, in 1904, a Bradbury tricar charged a cottage in the Six Days A.C.U. Trials.

Lynn is an interesting old town, and from the Quay quite Dutch in appearance. It contains two fine churches, the best of which is St. Margaret's. One enters the town through an ancient gateway, and if one be so minded the traffic beset portion may be entirely missed by turning to the right after entering the gateway, bearing right and then turning left, soon a level crossing is reached, and at the next turning to the right the main road to Hunstanton is joined.

The road to the latter seaside town is good, and the first object of interest to be encountered is Castle Rising, well worth a visit. Next we pass the outskirts of Sandringham, the country home so dearly loved of our late King, and where he caught his last fatal chill. The coast road skirts Hunstanton, and now we enter Nelson's country.

Leaving Old Hunstanton, Holme Church tower, a landmark for miles around, comes into view, and here there lives the sole surviving member of the Nelson family in Norfolk. Nelson's birthplace, Burnham Thorpe, lies inland some two miles or so from Burnham Market. On to Cromer, always in sight of the sea or the sandhills, which combat its ravages, the road winds. Blakeney and Stiffkey have magnificent churches, while Weybourne beach should not be missed. Here the shingle shelves abruptly down to the sea, and so deep is the water that a battleship may come quite close in.

All round the north-east corner the sea has made fierce incursions to beyond Cromer. Overstrand Church, whose ruined tower is a lonely landmark, is interesting as having inspired Clement Scott's well-known song the "Garden of Sleep."

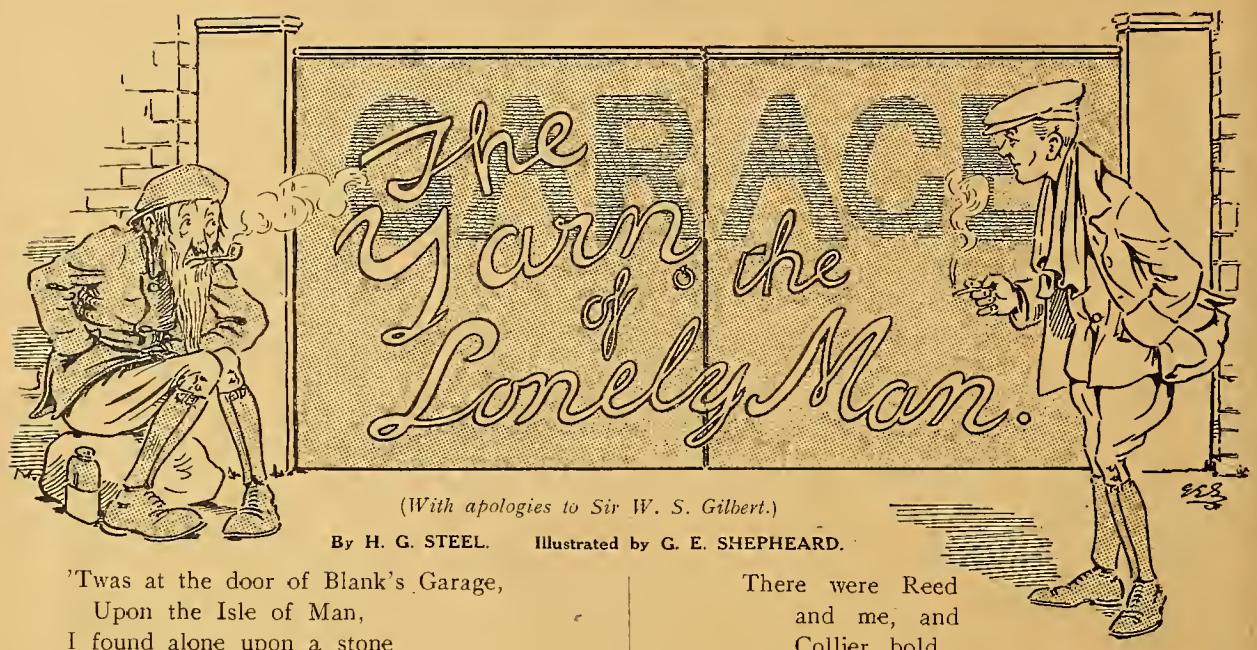
Turning inland at Mundesley we pass through North Walsham, and make for Blickling, beyond Aylsham, a fine old Elizabethan mansion, once the home of the ill-fated Anne Boleyn. Cottishall, one of the prettiest villages in Norfolk, is then reached, and here and at Wroxham excellent sailing on the rivers and broads may be obtained. From Wroxham to Yarmouth the Broad district is traversed, and at Ludham Bridge the yachts may be seen sailing on three rivers—the Bure, the Ant, and the Thurne—while right opposite are the ruins of St. Benet's Abbey, of which the Bishop of Norwich is the Abbot.

Yarmouth, the best known of all Norfolk watering places, is then reached, and after a fast run through Hele, Norwich comes into sight. Here the cathedral, the ancient Erpingham Gate, and the Guildhall should claim the attention of the tourist. From Norwich a fast run may be made to Scole, and then follows a trip across country to Thetford, and then along the main road to Newmarket, once a splendid road, back to Cambridge, but now sadly deteriorated. The ten-mile limit in the latter town, though unnecessarily long, should be rigidly observed. Two miles from Newmarket the Cambridge Road branches off to the left.

Northern League of Motor Cycle Clubs.

A lengthy printed list of the "Proposed Rules and Constitution of the Northern League of Motor Cycle Clubs" is just to hand. The headquarters are the Royal Station Hotel, York. Clubs having less than twenty-five members shall have two representatives, fifty or over three representatives, one hundred or over four representatives on the council. No business will be transacted at any meeting unless four or more clubs are represented. The annual general meeting will be held in the month of February each year. The trials, competitions, etc., held under the auspices of the League will only be open to *bona-fide* amateurs, but a trade class may be included if sufficient entries warrant it. Clubs affiliated to the League will pay a fee of 10s. 6d. for each 25 members or portions thereof. As soon as the rules are accepted we shall publish them *in extenso*.

Dutch Motor Cycle Club's first summer meeting of 1910. The photograph was taken at Apeldoorn, the summer residence of Queen Wilhelmina. There are two British machines in the group, a Douglas, and a Matchless, the remainder are of the F.N. and N.S.U. make.



The Yarn of the Lonely Man.

(With apologies to Sir W. S. Gilbert.)

By H. G. STEEL. Illustrated by G. E. SHEPHEARD.

'Twas at the door of Blank's Garage,
Upon the Isle of Man,
I found alone upon a stone
A dirty weird young man.

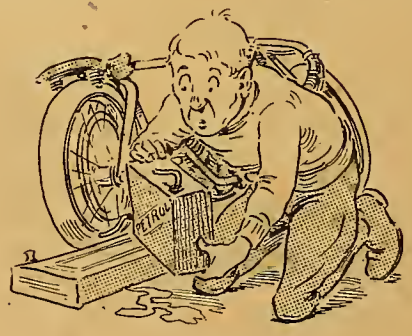
His hair was weedy, his beard was long,
And lanky and long was he;
And I heard this wight by the door recite
In a singular minor key.

Oh, I am a Reed, and a Collier bold,
A Chase, and a fast Godfrey,
And a Marshall tight, likewise a Wright,
And also Applebee.

And he looked so wild that I said to him
That drinking had been he;
For I'll eat my hand if I understand
However you can be

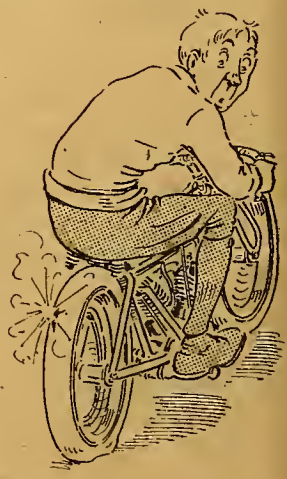
At once a Reed, and a Collier bold,
A Chase, and a fast Godfrey,
And a Marshall tight, likewise a Wright,
And also Applebee.

With the peak of his cap at the back of his head,
As motor cyclists larn,
And, taking a drink, and giving a wink,
He spun this painful yarn:



There were Reed and me, and Collier bold,
With spark advanced a going,
When my belt came adrift, and I had to shift
With Collier's, was I knowing?

But I bent it on, and away we jumps
As merrily as bells;
Then my tube it pops, and I suddenly stops,
But I borrows one of Wells.



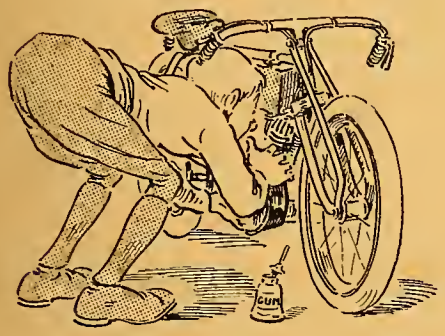
And after this I'm out with Chase,
Along of fast Godfrey,
When my gudgeon pin drops down within,
And my fly-wheel's all at sea.

Then Chase he takes a flywheel off,
And gives it unto me,
While a piece of tin makes a gudgeon pin
In the hands of fast Godfrey.

You will smile, I know, but after this
I flew up Sutton Bank;
And the only tale I had to wail
Was a bent and leaky tank.

The Yarn of the Lonely Man.—

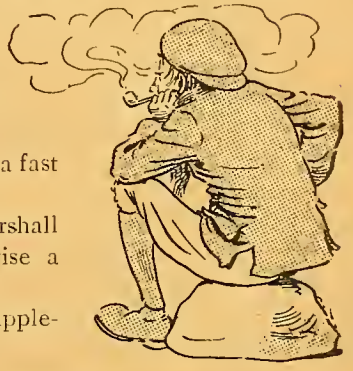
But Marshall tight then hove in sight,
And so soon did he begin
That with many a spank he made a tank
From a worn-out petrol tin.



I journeyed home, and I entered then
For the End-to-end that night,
With a new brake drum, stuck on with gum,
That was made for me by Wright.

So only Applebee is left,
And I don't mind telling ye
That a little fake of which he spake
Won a medal gold for me.

And I never larf, and I never lie,
And I never lark nor play;
But I sit and smoke, and a little joke
I have, which is to say—



Oh, I am a Reed, and a Collier bold,
A Chase, and a fast Godfrey,
And a Marshall tight, likewise a Wright,
And also Applebee.

Scene at the start of the M.C.C. London-Edinburgh Run from Highgate.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Oily Crank Cases.

[4776.]—I notice frequent reference made to oily crank cases. Possibly my experience may be of interest to some of your readers troubled in this way.

I use a modern machine of standard make. In the beginning I had to complain of the oil getting outside crank case and gear case. The makers' advice was "oil very carefully, preferably in small doses frequently repeated."

Still the trouble continued. Then I fitted a home-made non-return compression-release valve, thereby securing a partial vacuum inside crank case and gear case whilst the engine is running. This has absolutely cured the trouble.

I think if some accessories maker were to market an article of this kind he might find a paying demand for it. I know of at least three widely used standard engines that are sent out without being fitted with non-return, compression-release valves. As a consequence they soon get dirty and oily outside the crank case. W.

Automatic Carburetters.

[4777.]—May I be allowed to state some views on the above subject, which I have not before seen in your valuable paper. Now, what do pleasure riders want with a machine with one lever, and the further you push it the faster the bicycle goes? Surely half the fascination of motor cycling is to try your machine up the steepest hills. What does it matter if you fail? Try again.

I am very surprised at the position taken up by a sporting fellow like "Ixion" in this matter. I should like to know what will become of our hill-climbs if a man has simply got to sit tight and push a lever to get up. No, the automatic contraption is for the business man who has no time to return to the bottom of the hill and try again, or else push wearily up. Give me the good old two lever pattern and a sporting try.

In conclusion, I might say I am quite prepared for the exclamations this letter will doubtless call forth.

TAP TWIDDLER.

The Auto-wheel.

[4778.]—As manufacturers of the Wall Auto-wheel, we shall be glad to answer the enquiry of your correspondent in your issue of the 12th inst., not to encourage his cheap wit, but to enable us to give some information to many of your readers, who are no doubt generally anxious to know something of the Auto-wheel.

We may say at once that the press were not in error in their statements regarding the utility of the Auto-wheel, and repeated tests and trials have proved that it possesses all the advantages which were originally claimed for it.

In a case where the prospects are of so great magnitude it is necessary for the manufacturers to produce it in such a form as can weather all criticism, and in such quantities as can meet the enormous demand, which, even without seeing it in action, the public from all parts of the world have already made, and these considerations have decided the manufacturers to reserve to themselves the right to select the proper time for its introduction. We can, however, assure your readers that that time is now not far distant, and when it comes they will not be disappointed with the usefulness and efficiency of the device.

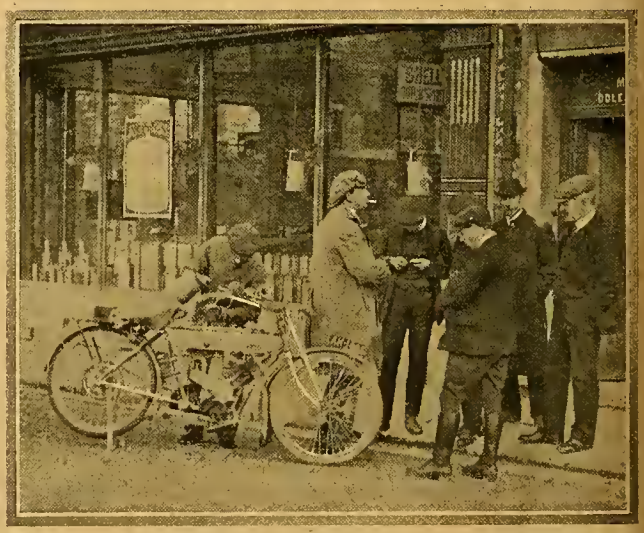
A. W. WALL. LTD.

Road Improvements.

[4779.]—The varying surface of the old "North Road," noted on the M.C.C. London-Edinburgh run, stands for a good argument for national control of road making.

The road surface after passing Newcastle-on-Tyne might certainly be improved upon by skilled treatment, so that it might compare favourably with the greater portion of the road south. It is a puzzle how the "corrugated roads" were made over the Scottish border, and perhaps the money expended in erecting ten-mile limit signs may better add to the comfort of travellers, although the "corrugated roads" may have the same effect (perhaps more so) as these warning signs.

Take the Coventry-Birmingham road for an example. There you will find the best and absolutely the worst main road in the kingdom, in different sections. The middle and Birmingham sections are, or were at Easter, a disgrace to the ratepayers of that district.



Bradford M.C.C Bradford-Keswick-Bradford Reliability Trial for N.S.U. cup. T. Bullus (3½ h.p. P. & M.), the ultimate winner, is seen at Kendal, checking and replenishing tanks.

Two weeks ago I passed over the main road from Yarm to Thirsk, and between the sixteenth and eighteenth milestones from Thirsk I came to a single row of stones running parallel and about six inches from the right wheel track on the outside and in stretches of from forty to a hundred feet. These stones were placed on a good hard surface, and later I discovered a man with a hoe distributing them in a single row as above stated.

As it was about 2.15 p.m. on a Saturday I have a suspicion that these stones were only another sort of mileage per hour limit sign, and hope that any motor cyclist or cyclist who suffers injury to self or machine through these obstructions will bring the matter home to the authorities in that section through one or other of the motoring organisations.

H. W. TURNER.

DUNHILL'S MOTORITIES
FOR MOTOR CYCLISTS.

"PONCHO." Best Double Texture Material, 32/6.

DUST CAP, 3/6.

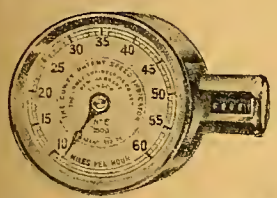
TROUSER OVERALLS.
Made from Finest Double Textnre Waterproof Material, 18/2.

HILLINGDON CAP, 5/6.

SINGLE TEXTURE FAWN WATERPROOF CAPE, 7/6.

PUSH ACTION SWITCH, 3/-.

HANDLE-BAR SWITCH for Magneto, 3/-.



"COWEY" SPEED INDICATOR, 4 Gns.
This Indicator can also be supplied indicating speed and distance in Kilometres.

VOLTMETER, 4/6

MOTOR CYCLE VALISE, 8/6.

"MATCHLESS" SPRING FORK ATTACHMENT.
Easily fitted and very effective. 15/6 per pair.

HANDLE-BAR SWITCH, 3/-.

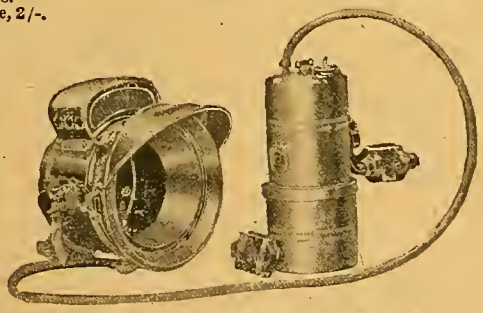
CARBIDE CARRIER,
Complete, 1/8.
Filled with Carbide, 2/-.

OLEO PLUG, 4/6.

SPARKING PLUG, 6d.

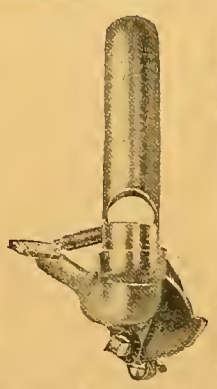
Automatic Vertical DROP BACK REST.
Very comfortable and absolutely safe.
12/6.

CORN EMERY POWDER,
For grinding valve seatings 6d.



MOTOR CYCLE LAMP AND GENERATOR.
Well made, with powerful lens mirror reflector which magnifies to a great extent. Can also be used for Tricars, 27/-

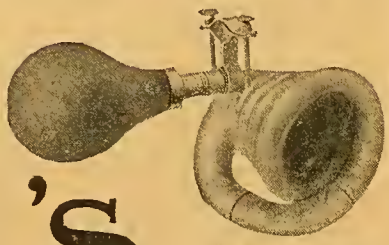
BELT PUNCH, 2/-



EXHAUST WHISTLE, 10/6
Very Mellow Note.

TREBLE-TWIST, NICKEL-PLATED HORN,
Very deep note. 5/6.

Write to Dept. "M" for Motor Cycle Catalogue, sent free on request.



"INVISTOR" HORN.
Loud and penetrating.
8/-.

DUNHILL'S

359-361, EUSTON ROAD, LONDON, N.W.

88, CROSS ST., MANCHESTER. 72, ST. VINCENT ST., GLASGOW.

Some folks think LIGHTWEIGHTS are unsuitable for touring--some of them are--but the

Motosacoche

(The Gentleman's Motor Cycle)

REIGNS SUPREME, and one was ridden from

LONDON TO EDINBURGH AND BACK

In M.C.C. Reliability Trials in schedule time.

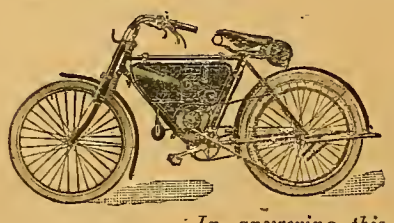
Don't forget the AND BACK

and on ONE BELT—a WHITTLE.

Two other MOTOSACOCHES which were ridden and entered by private owners arrived at Edinburgh in Schedule Time.

Only Three Started and they all qualified for GOLD MEDALS.

This is where you laugh—and think what 1½ h.p. can do when the engine is made as it should be—but you haven't to think very hard—after all—to understand why this is. All users of these beautiful little engines will understand, and the bicycles—well, the Rover and Singer Companies make the best cycles in the world, and they make them for the MOTOSACOCHE—so when you come to think of it there's nothing wonderful about a MOTOSACOCHE being ridden from London to Edinburgh AND BACK.



To prospective purchasers a trial ride is better than all the talk of

MOTOSACOCHE LIMITED,

65, HOLBORN VIADUCT, E.C.

In answering this advertisement it is desirable to mention "The Motor Cycle."

Belt Fastener Screws: A Suggestion.

[4780.]—I should like to call attention to a detail in belt-fastener construction which would make very decidedly for comfort and ease of manipulation. It is simply this, that the head of the pin which passes through the belt to attach the fastener be made square, so as to take the small spanner which is to be found in everyone's tool kit nowadays. I cannot recollect having seen this mentioned before (though I have looked through my back numbers of *The Motor Cycle* for the last three years), and I know of no make of belt-fastener the pin of which is not round-headed with a slot in it for the use of a screwdriver. Retain the slot by all means, it is necessary to start the pin in its thread when screwing it up, but most of us have had the experience of a pin rusted in, or whose thread was burred by contact with the pulley, to move which the screwdriver was totally inadequate. I have never yet spoken to another motor cyclist who did not agree as to the superiority of a square head, and about a month ago when I mentioned it to the Service Company they told me they had just had some pins of that description made to the order of a customer. So, although it may seem a small matter about which to write so much, as it appears to be a very real and general want I have thought it worth while to raise the question for decision in the columns of your valuable paper. D 7985.

The Northern League.

[4781.]—With reference to your leaderette on the above, I should like to ask you what the A.C.U. has done to conciliate Northern clubs, and also what inducements it has offered to draw these clubs into the fold. These questions

Meet of the Winchester and Surrey Motor Cycle Clubs at Winchester.

have been asked by the Northern League clubs before now, and the A.C.U. has not been able to give any reply. Can you?

The riders of the North do not expect to work independently of any other body, and the chief point of contention is not as stated in your article, but is simply this. The clubs who have formed the Northern League do not think it reasonable that they should have to pay a fee to the A.C.U., simply because they send out an invitation to several neighbouring clubs to meet together at some point of interest, and hold a competition for purely nominal prizes with no idea of making any profit on same. It is surely too bad to put a heavy tax on hospitality.

It is my personal hope that the Northern League will acknowledge the A.C.U. as governing body, but I am bound to say that the officials of the A.C.U. are very lax indeed in their methods, and anything but conciliatory towards the officials of the League. The question to be answered first of all is, "What benefit can the clubs forming the Northern League derive from becoming affiliated to the A.C.U.?" If the reply is "None whatever," the Northerners will stand clear. We have yet to hear from the A.C.U. of anything it has done to assist the sport in the North. Has it no reply? PRO MOTOR.

Increase of Speed on Partially Raising Exhaust Valve.

[4782.]—With all due respect to correspondents who have endeavoured to explain the above subject, I fail to find anything yet to cure my 3½ h.p. Triumph, which has this puzzling complaint. The engine is perfect, and timed correctly; the timing I have varied a tooth either way, both inlet and exhaust, yet it has not cured it. Naturally, I find the motor runs better when timed as sent out by the makers, viz., inlet valve begins to open when ¼in. down the suction stroke, giving plenty of time for exhaust valve to close definitely, which it does exactly when on top of stroke. This dispenses with the explanation *re* bounce of exhaust valve ("Poney's" letter, 4754). I rode one hundred miles with exhaust valve partially raised, and I lost compression. On taking out the exhaust valve, I found it pitted, caused by not being closed. I admit holding up exhaust is no cure, but did it for experiment. After trying everything I saw in *The Motor Cycle*, and using my own experience, I must confess I am beaten. I feel certain, if the cause and cure could be found, more power would be the result from most engines.

I yet await some other explanation, which I will readily try. TRY AGAIN.

The London-Edinburgh Run.

[4783.]—I have read with interest the comments of Mr. Morris in *The Motor Cycle* of May 12th, and have also a grievance against the M.C.C. My case is as follows: I entered a Scott for the London-Edinburgh run on April 14th, and received particulars in due course. As soon as I received my route cards, being desirous of working out the times and having the cards specially treated so as to make them weatherproof, I wrote to two officials of the M.C.C. asking them for my starting number. I received a similar reply from both, namely, that my starting number was 7. Accordingly I worked out the times and got my cards in order. When I received the official programme for the run I found that I was No. 99. As I had made all arrangements to start 7, I did not consider this was fair treatment to be suddenly removed to the end of the list. Accordingly I wired to the M.C.C., stating that under these circumstances I should not take part in the run. On Friday morning, at 11.30, I received another wire, this time from one of the M.C.C. officials, as follows: "You can start 7; explain to you Highgate." This, however, was received too late to be of any use to me, as I had by then made other arrangements. FRANK PHILIPP.

The Motor Cycle in the United States.

[4784.]—A great deal has been written concerning the differences between American and English machines, but as yet no one seems to have quite hit the point. The reason for these differences is not a difference of opinion as to what is best in design but the different conditions under which the machines are designed to run. I am living at present in a city of 110,000 people in one of the most thickly settled parts of our country, yet I know of only four roads out of the town that would be marked upon an English road-map. Under such conditions foreign machines do not show up very well, and I have tried both English and German. The frames, tanks, rims, spokes, and hubs will not stand the hammering of our rough roads. I have ridden the same machines in England and found them perfectly satisfactory. The engines are certainly wonderful.

The best form of transmission devised so far seems to be unknown in England, although it is immensely popular here. It consists of a flat endless leather belt about one and a half inches wide made of two thicknesses of leather with canvas sewn between to make it stretchless. This runs over leather faced pulleys and has a spring idler to maintain the tension. The idler can be slacked from the saddle, giving a fine free engine. It has the rubber V belt lashed to the mast.

I do not expect to ride in England again for quite some time, but English roads figure prominently in my dreams of heaven, and *The Motor Cycle* is like a voice from above.

Connecticut, U.S.A. LN 5142.

SUMMARY OF CORRESPONDENCE.

"H.E.W.I." (Chatham) would like to join another motor cyclist who is also a fisherman for a fourteen days' holiday in West Ireland in June. Objects, fishing and motor cycling.

"INCREASE OF SCHPEED ON OBENING DER EGGSHAUST."

"YOU must get her oudt into der oben air," says der doctor.

"Dot's all righd, Herr Doctor, dot is, to talk like so, but how's she goin' to valk when she's got der sky-attics or voteffer you calls it, eh?"

"Drive," says he.

"Mein Gott," I says. "Vos you t'inkin' I vos made of gold, Herr Doctor. Dose drives costs lots of monies. Ve, ve ain't all doctors, you know."

"Oh, vell," he says, "if you brefers to lose her—"

"Look here," I says, "if you vants trouble, dot's der vay to find it, talkin' about me vantin' to lose der leedle voman!"

He laughs. "Dere, now," he says. "Vhy don' you get a motor? No, not like dot von of mine, but a motor bike und sidecar."

"Doctor," I says, "I'll do it."

Und dot vos der peginnin' of all de troubles. Ja. Now, der first t'ing to do, says I to mineself, is to get to know all about dose machines, und I buys a paper called der *Motor Cycle*, und on der first page I sees a schplendit article on "Ingrease of Schpeed on Obenin' der Eggshaust."

"Beim Gott!" I says, "dot's written by an eggsbert, dot is. Vhy he makes it as plain as plain, vot?"

Und I turns ofer der page und sees anodder article, "Ingrease of Schpeed on Obenin' der Eggshaust." Eh? Oh, noddings, onlies dot feller proves dot der first feller dunno vot he's talkin' about. Und each veek I buys dot paper, und each week de boor editor gets bombarded mit letters on "Ingrease of Schpeed on Obenin' der Eggshaust." Eferybodies agree dot dere's noddings like it for geddin' up schpeed, und eferybodies gives a different reason for it. Neffer mind, my poy, I says to mineself, I dunno vhy it is, but it don' matter so long as ve gets it.

Und den I sells my "Dashrot Tenshows"—Eh? Ya, rubbers, of gourse—und goes along to der blace vhere dey sells motor bicycles. Vell, shust so soon as I gets in I sees der machine for my monies. I dunno, I t'inks dey calls it a twin or somet'ings, but it had a big Union Jack painted on der front und a figure of Pritannia rulin' der vaves on der mudguard. Und dot's vot I like, dot is; none of your foreign machines for Isaac Isaacstein; no, sir!

"How much?" I says, lookin' at der vone negsd to it—Omba I t'ink he calls it.

"Und dis vone?" I says, quite casual like, bointin' to der vone mit der oldt flag on it.

Vhy, I couldn' hardlies pelieve it; it cost less monies dan der Omba vot hadn' got no flag nor no Pritannia nor noddings!

"Gimme Pritish goods efery time," I says "You can send on dis vone mit our flag on it."

He schmile, und he schmile, und he schmile; so amusant is it to see batriotism in a Pritisher.

Und der negsd day I unpacks der sidecar un der "A.B.C.D." Dot's der name of der bicycle.

"Dere now, Repecca, my tear," I says,

"dot's der leedle turn-oudt dot's goin' to pring back der roses to your cheeks."

Eh? Vell, I dunno as it did. Dot "Ingrease of Schpeed on Obenin' der Eggshaust" is a bit of, of vot common beobles calls "swank." So soon as I gets dot plessed machine to go, I obens der eggshaust, und der tamned t'ing schtops! I tries it ofer und ofer again, till der sv—— bersbiradion vos runnin' off of me. Petveen me und you, dose fellers dot writes about it are esgabed lunadics.

Den der garbureddor goes wrong, und den me und der inlet valve schprings ve bot' loses our temper, und she schtarts poppin' back. "For repairs?" Ya, I eggsbect.

Und den der enamel chips off, und dere underneat', for der amusemend of eferybodies, vos der vords "Made in ——."

"Py Chingo!" I says, "dot's a fine t'ing, dot is; Isaac Isaacstein ridin' a machine 'Made in ——,' shust like he vos a foreigner hisself!" Und I takes it back to der beobles vot sold it.

"Here," I says, "vot's dis?" I says.

"Union Jack," he says.

"Und dis?" "Pritannia," he says.

"Und I buys it pecause it's Pritish. Is it?"

"Vell," he says, "it ain't eggsactly *all* Pritish."

"Der tyres?" "Sherman."

"Der frame?" "Pelgian."

"Der enchine?" "French."

"Der magneto?" "Svedish."

"Der lamp?" "Austrian."

"Vell," I says, "I subbose der gas at least—"

"Amurrican."

"Of gourse, natürlich," I says, "I might haf known vhere all der gas comes from. Ain't dere noddings dot's Pritish?" I says.

"Dere's der Union Jack," he says, "und Pritannia, she's Pritish, ain't she?"

"Vot's dot 'A.B.C.D.' mean, anyvays?" I says.

"Actiengesellschaft Bruxellois Cosmopolite Deutschlands."

"Gott in Himmel!" I says. "How much you gif me for der lot?" "Twenty pounds," he says.

"Done," I says.

No, I don' ride a motor bike no more. Me und Repecca ve goes oudt in our leedle donkey cart, und vhilst she finds t'istles for der donkey and roses for her cheeks, I writes letters to der editor on der "Ingrease of Schpeed on Obenin' der Eggshaust."

ZENITH-GRADUA

52 Gns.
No extra charge for J.A.P. engines.

For RELIABILITY.

Starts at a Walk.

Climbs Anything.

Muswell Hill, N. 2/5/10.

Gentlemen, ... No doubt you will be pleased to hear the ZENITH-GRADUA I had of you is giving the greatest satisfaction. Using it every day for business purposes I find it always ready for work, and have yet to see its equal for RELIABILITY. As for the Gear, it is a great benefit to have a machine that you can ride through the thickest of traffic without dismounting and be able to ride up anything in the way of hills, no matter at what pace you arrive at the foot. The machine has had no replacements with the exception of one nut cost 2 l., and one new cover after 7,200 miles. This speaks very highly of the quality of your splendid machine, which is in perfect condition and climbs as well as ever. I climbed Muswell Hill daily, and have started from a standing start on this hill, also on the steepest part of Swain's Lane, and to anyone knowing these hills they will know what a severe test this is. Have never had a mechanical failure. If you like to make any use of this, you are at liberty to do so, as it cannot be too widely known what a splendid mount the Zenith-Gradua Is. Yours etc.....

Equally suitable for Speed or Traffic Work.

The GRADUA GEAR fitted to TRIUMPHS—12 Gns.

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The

"HANDY HOBART"

Simply Perfect in Construction. Perfectly Simple in Use.

Lightweight Motor Cycle.

MOTOR CYCLING CLUB'S

HILL CLIMB, KOP HILL:

1st. F.N., weighing 159 lbs.
2nd. F.N. with two-speed gear, weighing 185 lbs.
3rd. "Handy Hobart," weighing 109 lbs.
63 Entrants.

M.C.C. London to Edinburgh.

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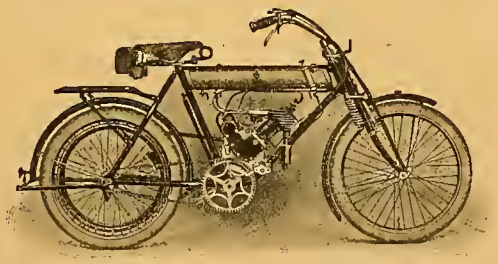

PRICE 35 GUINEAS.

2¾ h.p. Single-cylinder Engine, automatic carburetter, Bosch magneto, Hobart adjustable pulley, Druid spring girder forks, handle-bar control.

LADY'S MODEL NOW READY.

Complete Illustrated Catalogue and particulars from —— **HOBART BIRD & Co., Ltd., Dept. H22, Coventry.**

Full Marks

for

Hill-climbing
Silence
Cleanliness
Brakes
Stand
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General Reliability

were awarded to the

ROYAL ENFIELD Lightweight

in the recent AUTO CYCLE UNION TRIALS.

Note that, and also that among the seventy Competitors there were two Enfields, and each secured the same award and, out of a possible 180 marks, received 179.

By such a rec rd, unapproached by any other similar machine, they proved beyond dispute that they could do that which no other Lightweight could accomplish, and—

Remember, the bike that bears that name will achieve more for you than any other—hence, before you buy, ask the Company for List and address of nearest Agent.

Dept. 17.

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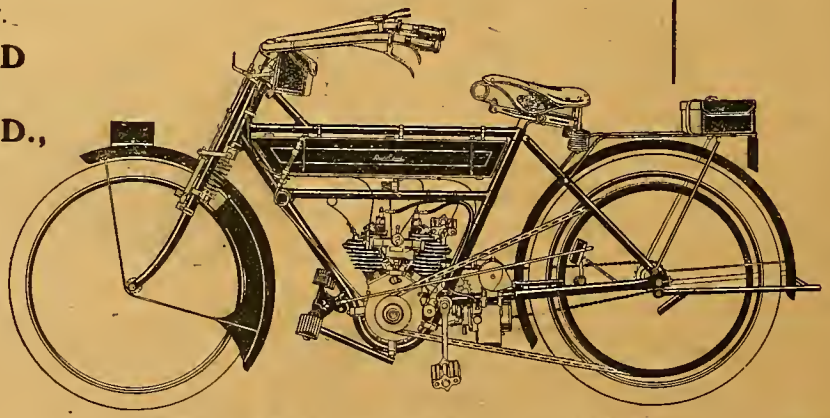


TWO MODELS—prices £40-3-0 and £43-5-0.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and, whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

Absence of Compression.

I have a 3½ h.p. 1907 Quadrant, to which I intend fitting a new piston and rings. Will you kindly inform me what are the signs by which to know if the cylinder requires reboring?—W. T.

If after fitting new piston rings, and proving that the valves are in perfect order and the joints quite gastight, you still get insufficient compression, it is time the cylinder was rebored.

Butt-ended Tubes.

I should be extremely obliged if you could give me any information respecting butt-ended inner tubes. What is the fault with them?—B. H. W.

All the butt-ended tubes made by the best-known makers are satisfactory, provided they are properly fitted according to the instructions. The only fault with them is that, after continued use, the ends are liable to rub through and cause a leakage. Of late, however, we have heard no complaints in this connection. They are a great convenience when changing tubes.

Gear for Sidecar Work.

I am thinking of fitting a new 80×94 a.o.v. Peugeot engine and Mabon clutch to my motor cycle. (1) Would this be a satisfactory combination to pull a sidecar, weight of myself and passenger 22 stones, on average roads? (2) Would the above clutch assist me in climbing stiff hills? (3) Would a 6 to 1 gear be suitable for the country to the N. and N.W. of London? (4) Do you think above combination would take passenger up Muswell Hill on a 6 to 1 gear (ignition is by accumulator and coil)? (5) Which of the three types of sidecar is the easiest to pull?—C. B. R.

(1) The machine would take a sidecar satisfactorily on average roads, but a change-speed gear would be advisable for ease of starting and hill-climbing. (2) The clutch would be of little assistance in hill-climbing. (3) A 6 to 1 gear would be about right for climbing average hills, but would be too low to allow the engine to keep cool on level roads. (4) We doubt if it would take two people up the hill with a 6 to 1 gear. (5) There is very little difference. Perhaps the flexible and castor wheel types are the easiest to pull.

Opening of Valves. Dripping Carburetter.

(1.) I find the opening of the automatic inlet valves of my four-cylinder motor cycle to be $\frac{3}{16}$ths of an inch. The consumption is not more than seventy-six miles to the gallon. Would a smaller opening reduce consumption and increase efficiency of engine? If so, could the top of the valve stem be threaded to take a nut for adjustments? (2.) When petrol is turned on, it overflows from a hole beneath the jet chamber for about a minute. The needle has not been touched since I bought the machine (July, 1908), but an experienced chauffeur of my acquaintance looks at the needle very doubtfully when I suggest grinding in.—C.F.Y.

(1.) We think you ought not to complain of the consumption of seventy-six miles to the gallon in a four-cylinder engine, and we should therefore recommend you to leave the valves alone. If, however, you prefer to try the experiment, the simplest way out of the difficulty would be to insert four thin, equal size washers between the spring cap and the seating through which the valve spindle passes. (2.) We do not think the needle valve requires to be ground in. Probably if you just tap it gently the petrol will cease overflowing. In any case, if the carburetter does not drip when the engine is running, it would be inadvisable to disturb the adjustments, particularly as you say the petrol only drips for about a minute.

The Scorcher's Dream.

A Machine to Start without Exertion.

I travel England, Scotland and Wales, and am forty years of age, and about 14 st. My heart is weak, and I cannot run when starting, although I am active and healthy generally. I am never ill, and my samples are about 2 lbs. in weight. If you know of any motor bicycle which would particularly suit me kindly name it.—L. M.

If you have a weak heart and do not care about pedalling or running the machine and jumping on, we should recommend a medium weight, single-cylinder machine, fitted with a two-speed gear and free engine for starting from a standstill. We cannot recommend any one specific make. The better plan in your case would be to obtain a trial of the machine before deciding to buy it.

A Beginner's Mount.

(1.) I am thinking of buying a motor cycle, but, unfortunately, I cannot afford more than £7 or £8. I have, however, seen lately in your advertisement columns several machines second-hand for about that price, and I should be obliged if you would tell me if a good and reliable one could be obtained for about that figure. I weigh 8½ stones. (2.) As I do not care for accumulators, do you recommend a Hellesen dry battery? Also is the latter suitable for a trembler coil?—B. O.

Of course, you cannot expect a really good motor cycle for the price mentioned. You could with the exercise of discretion and with the assistance of an experienced friend obtain a serviceable second-hand mount of old pattern, which would serve splendidly as a learner's machine. (2.) Certainly if the machine is provided with a make and break contact and plain coil, you can use a dry battery, but you must not use a dry battery under any circumstances with a trembler coil, as the latter is much too extravagant in current consumption.

Position of Engine.

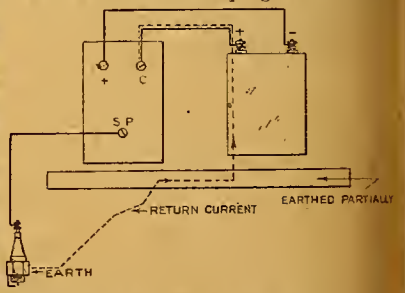
I am having a new machine built, with all the improvements I fancy on the new 1910 machines. I have been told that a 3½ h.p. engine, if built on the frame inclined, will lubricate itself better, and will keep cooler, than if placed vertical. Is this so? How can I tell the size tyres I shall want (measure rims)? What gear do you recommend for sidecar work? With 3½ h.p., would an adjustable pulley be advisable?—B. C.

We do not think you will find that an engine in the inclined position will lubricate better than if vertical. The vertical position is by far the most popular, and there is certainly no difficulty in oiling this type of engine. Measure the rims across from edge to edge. We should recommend a 5½ to 1 gear for sidecar work. Certainly an adjustable pulley would be necessary, and a two-speed gear would be advisable. Without one, pedalling assistance would frequently be necessary.

An Errant Spark.

I noticed recently a series of small sparks jumping between low-tension wire and frame at every explosion. Having taken the accumulator, trembler coil, and sparking plug out, I connected them up, earthed the plug thoroughly and insulated both accumulator and coil well. Every time I made contact the spark occurred at the plug, but at the same time the shocks coming through the low-tension wire were such as to render it difficult to hold it by hand, although the insulation is sound, the wiring being new. The coil in question has three terminals for connecting up only, viz., to sparking plug, battery, and contact breaker. On the platform carrying the trembler there are two more terminals, one of which is not screwed into the coil right up to its shoulder, but there is a small clearance between platform and shoulder, and small sparks also occur here when firing. When the accumulator is put on the table without being insulated by rubber matting, the slightest wet spot on the bottom part of the casing will at once draw sparks out of the table when firing. Do you think the coil is at fault?—C. S. N.

The trouble seems to be due to the fact that the coil has no separate earth return, consequently the high-tension current is free to return to the coil, after jumping the sparking plug gap, through the accumulator, consequently, if the accumulator is at all wet from acid, sparks will come from it, and this is somewhat dangerous, as, if the accumulator is made of celluloid, it might easily catch fire. Beyond this objection there is no particular harm, and if you use a high-tension cable for the wire from which you get your shocks, the trouble will be overcome to a slight extent. It appears that the table on which the experiment is carried out is not perfectly insulating. If the wood is slightly damp, the reason can easily be seen by sketch. In the construction of coil with three terminals, the inside end of high-tension winding is connected to primary, so that the return for high-tension current, after jumping the plug (when same is in the engine), is through the frame and contact breaker, through primary circuit back to coil through C terminal. When the plug is unearthed.



and the coil and the accumulator partially insulated on the table, the return can only be made through earth, and then to the weakest part of insulation between earth and primary circuit. If the accumulator is wet, the weakest part of the insulation would be through the wet celluloid. If the operator stands on earth and touches primary wires, the current would then pass through the body to primary, causing shocks. With reference to the other two terminals on top of the coil, it is rather vague what these are for, without knowing make of coil. Probably they are for ease of assembling coil, and are merely clamping screws for joining two internal connections. If one of these connections is in high-tension circuit, a bad connection would cause sparking. If the coil and accumulator were perfectly insulated no spark would take place at the plug.

SCENES ON THE M.C.C. ANNUAL LONDON-EDINBURGH RUN.

(1) Final Preparations. (2) Ye Olde Gatehouse, Highgate, the starting point. (3) First stop, Biggleswade. (4) A lady who drove through the twenty-four hours run alone. (5) Three sidecars in the night. (6) Leaving Grantham. (7) Officialdom at York. (8) Voices in the night, "Keep to the left." (9) Outside the Windmill, York. (10) Anything serious? (11) The mining district. (12) Back views, Newcastle-on-Tyne.

READER'S REPLY.

Belt Jumping off Pulleys.

I should like to point out to "B. W." that I was troubled with my belt jumping off although the pulleys were in perfect alignment. I finally traced it to the V groove of rear belt rim not being upright.—F. T.

THE MOTOR CYCLE

Vol. 8. No. 375. June 2nd, 1910.

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Lessons from the T.T. Race.

THE fourth race for the Tourist Trophy was even more successful than its forerunners, the number of entrants and actual starters being larger than ever before. Interest in the event was even more pronounced, and a great crowd assembled at the starting point. Again we have to chronicle a British success—in fact, never has the list of leaders presented a more all-British aspect, as the first eleven machines to complete the course are of English make. Turning now to the duel between single and twin-cylinders—which is, after all, the main feature of the race—we observe that six of each type are among the fastest dozen. This year twenty-nine completed the course before the roads were declared open—a larger number than hitherto, chiefly owing, of course, to the increase in the number of competitors. In connection with the mechanical features of the winning machines, it may be said that history has repeated itself. Twin-cylinder machines occupy first and second places, with single-cylinders third and fourth. Overhead mechanically operated valves were, as last year, fitted to the winner's mount, and side by side valves to the first single to finish. A number of multi-cylinder machines are rather low down the list. This is not entirely due to their inferior speed but to the troubles met with during the race. It must always be remembered that racing is far and away the most severe test to which a motor cycle can be put. It is the pace that kills. It has been demonstrated that the single-cylinder machine again holds pride of place for efficiency, for, although ten minutes separate the fastest twin and the fastest single, this period is very small when one considers the greater capacity of the twins. Comparing the times with those of last year, there is an improvement, for this year's winner, using an engine 80 c.c. smaller than last year's winner, succeeded in reducing the time by 6m. 13⅘s. The winning single this year improved on last year's best single-cylinder time by as much as 13m. 12s.—a striking advance, as last year's performance was considered a great feat. The time record for a lap was also beaten in several instances. This is another factor which attests the all-round improvement that has taken place during a comparatively short period of eight months, and furnishes a proof of the good effect of the T.T. Race.

We are glad to have to report no serious accidents, despite the very high speeds and the tortuous and dangerous character of the course. There is a soul of goodness in things evil. Owing to the serious accident during practice, competitors learnt that it was better to use discretion in dangerous places, and preserve a chance of finishing. We believe that every rider started in the race with a determination to risk nothing—a practice which has served well in the past. Lastly, we must not overlook the excellent organisation of the Auto Cycle Union, which was well nigh perfect.

Being a narrative of a 4,000 miles tour undertaken by two American motor cyclists—Dr. Webster and Mr. W. C. Chadeayne—embracing the British Isles, France, Switzerland, Germany, Holland, and Belgium.

(*Concluded from page 465.*)

There would be no use in my trying to describe the most beautiful scenery of Switzerland. It is so different from anything I have ever seen. Words, or even an artist, cannot do it justice. One has to see it to appreciate it. The cities we visited were Neuchatel, Thun, Interlaken, Lucerne, Zurich, and Baden (Swiss). Most of these cities remind me of our fashionable summer resorts, for there are so many visitors and sightseers, and, as is to be expected, high prices.

Doubtless you have heard of the man who went to Interlaken for a change and a rest—the hotelkeeper got the change and the waiters the rest. We seldom stopped long enough in a place to have our washing done, so if we could not get someone to do it for us we did it at night ourselves, rolled it up, and some time the next day dried it. I remember one day stopping about half way up a mountain, and stringing up a line for our clothes to dry while we stretched out on the grass to enjoy the scenery and eat a lunch. While there I said to Bill, thinking he had supposed I should not be able to rough such a trip: "You haven't heard me kick on any accommodations, have you?" "Accommodations!" he said. "We haven't had any accommodations to kick on."

Military Discipline in Germany.

From Switzerland we took a little ferry boat across the Rhine to Walshut, Germany. We had no more than landed than we felt the atmosphere of German rules, laws, and the wonderful military discipline. There, soldiers are seen in all cities and often in the country, and are by far the best drilled and the neatest appearing of any we saw. Their noon military band concerts are exceptionally fine. Upon entering Germany the tryptique we received from the British Auto Cycle Union and the certificate from the German Consul to Great Britain helped us a great deal in obtaining our "Steuerkarte," or pass card, that we had to carry with us and show if requested, and every time we entered or left the country it was stamped. We were required to carry on our machines large number-plates, larger than most car numbers. The Germans can trace a person at any time and to any place, for you cannot stop over night except at a licensed gasthaus or hotel, and when you register, your name, address, nationality, age, where you came from that day, where you are going, and when you expect to start, are all written down. These "biographies" are collected every morning by the police and kept on record. By going to the police station you can usually locate your friends. Our touring in Germany was mostly along the Rhine River, riding backwards and forwards, taking in the places of particular interest. Few houses are seen in the country, but the villages are only three to five miles apart, so the men, women, and children walk to their little farms. The soil is very fertile, and they raise all kinds of crops. But their vineyards are their greatest source of income. At places hundreds of acres can be seen, and the sides of the hills and mountains are terraced so as to make more growing surface.

As to the condition of the roads, I believe I should express it about right if I said the Germans don't know what bad roads are, except that most of the villages are paved with rough cobblestones.

A Shortage of Petrol.

While riding along one morning in the middle of the Black Forest, it seemed to us the farthest distance from a village that we were at any time on our entire trip. Billy ran out of gasolene, and, thinking that I had plenty in my tank, put his machine in a ditch to syphon some from my motor cycle into his, and found I had only a few ounces left. By holding up our machines and flooding the carburetter we could ride for about a quarter of a mile; then we repeated the operation until we reached a small village, and a little benzene was obtained at an apothecary's shop to carry us to Baden-Baden.

When I left home several of my friends remarked: "Look out, Doc., and don't get pinched for fast riding." There were several police traps in England and in different localities on the Continent, but we were very fortunate in never having to meet "His Honour." My worst scare was in Mainz. I was riding carefully, but a young boy ran out in front of me, and my machine knocked him down. Of course, three or four policemen happened to be near and saw the whole affair, so I was imagining all the things that would doubtless happen to me, for I had been told by several car owners of the severe fines that had been imposed upon them for the most trivial accidents. I stopped as soon as possible and went back. The police never said a word to me, but raised the dickens with the kid and sent him home. It was a frequent occurrence all through the Old Country for crowds to gather around our machines, much more so than in America. Even the women would apparently go into details. In Strasburg, as in several other cities, the police had to keep the crowd away as it was stopping traffic. Upon my return home a doctor asked me how the drinking water was over there. I told him I did not know. My sister then asked if the beer was so much better than our American beer. I said,

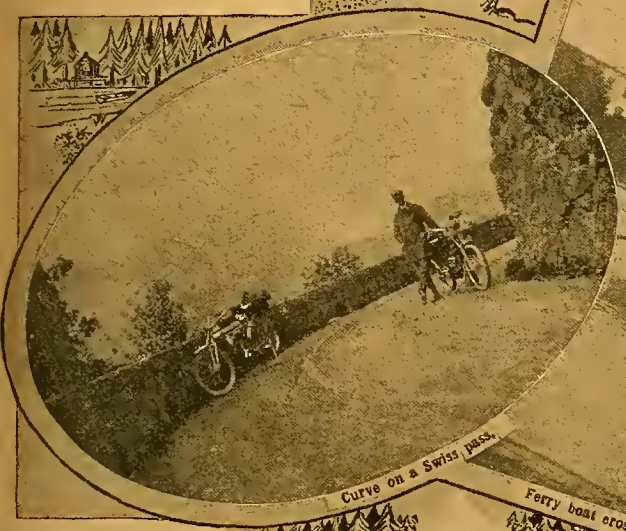
Through Great Britain and the Continent.—

"I think it is. German beer here is ten or fifteen cents a glass, while over there it is two or three cents, so with the idea of being economical I drank all I could in order to save money."

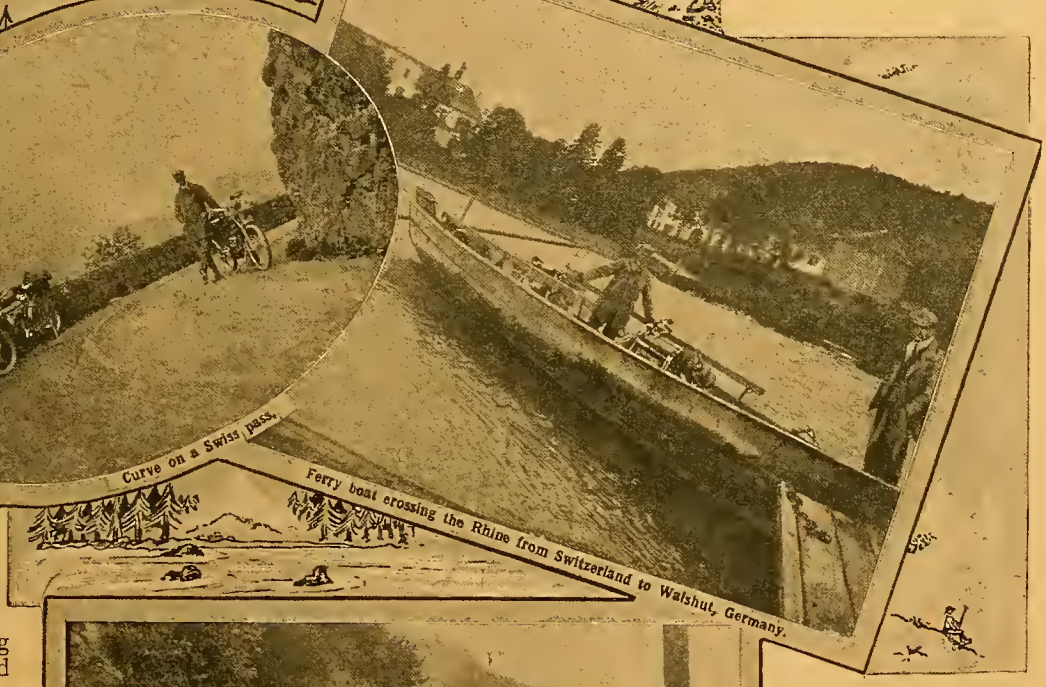
The Rhine Valley.

The interesting, historical, and beautiful part of the Rhine is from Bingen to Bonn, or possibly Cologne. There is hardly a turn in the river that does not present some new, magnificent view

View of the Rhine River, Castle in distance.

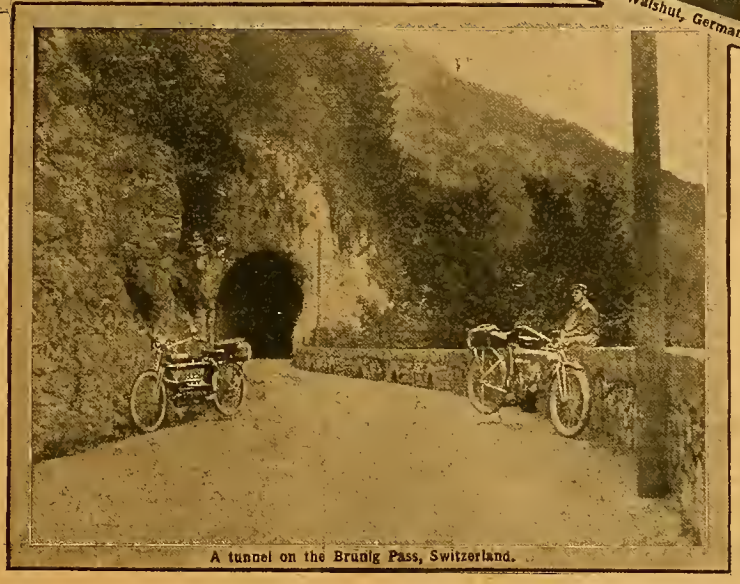


Curve on a Swiss pass.



Ferry boat crossing the Rhine from Switzerland to Walshut, Germany.

nd one or two astles or ruins of astles. I never ppreciated a motor ycle more than along ere. In fact, we had he advantage over ll other kinds of ourists whether they ode by train, boat, icycle, or went on oot. We had the dvantage of all with one of the disadvantges. We would ften stop and take n the scenery, or ossibly climb up and o through some of he castles. Between Heidelberg and Mannheim Billy ran into a log; the dog went ne way, the machine nother, and Billy



A tunnel on the Brunig Pass, Switzerland.

still another, breaking his handle-bars and skinning his knees. He was eating a sandwich at the time, and the first thing he did when he got up was to take another bite. As a motor cyclist usually has two or three skinned knees we paid little attention to his knee, but in the course of a couple of days it became infected, so he took the boat at Coblentz and rode to Cologne, and I rode my machine along beside the boat. At Cologne I was drafted into the service as doctor and nurse for a few days until he was able to continue on the trip.

Advice to Avoid Belgium.

If any of you are planning a similar trip, take my advice and cut out Belgium, if riding a motor cycle. The roads are very rough, being paved between the towns with Belgium block or cobblestones. Even Billy, who was riding on his Greyhound shock absorber, could not help but

Through Great Britain and the Continent.—

recite a Golden Text once in a while. We visited the principal points of interest in Liège, Brussels, and Antwerp. In Liège we were shown great attention by the officials of the F.N. Works, and were taken all through their factory, which employs 3,500 men and over 900 women. The men were very much interested in our Yankee motor cycles.

The scenery and customs of the people are different in every country; this was markedly so in Holland, which is low and level; good roads, built mostly on the top of the dykes; and the large four-armed windmills that move slowly, as the Dutch people, but they get there all the same. These windmills are not only used for pumping water from the dykes, but for all kinds of power, as in grinding grain, etc. I imagine Rotterdam is a little on the order of Venice, for there are canals all through the central part of the city which are filled with barges and fishing boats and many steamers. While we were in Rotterdam there were quite a few cases of Asiatic cholera in Holland, so instead of sailing from here to Leith, Scotland, as we had planned, we returned to Antwerp and sailed from there. We did not want to run the risk of being held up in quarantine when we reached Scotland. Although we carried folding pocket cameras, the pictures taken were not always satisfactory; many times we were unable to obtain the views we desired, but we could obtain postcards of these views, and brought back a fine collection of 700 or 800 photographs and cards, which I have arranged in an album in the order we saw them. This makes a very interesting, illustrated story of our trip.

A Glimpse of Scottish Lochs.

Our voyage from Antwerp to Leith across the North Sea was stormy and rough. Edinburgh is one of the most beautiful cities I have seen, and I cannot blame the Scotch for being so proud of it. On the way to the Trossachs, or lake regions, we passed through Stirling and went to see the famous old castle. Motor cycles and cars are not allowed on quite a few of the roads around Loch Katrine and Loch Lomond. We also found that to be the case on many of the roads in Switzerland. We took long chances in riding over some prohibited roads. Then we walked over roads Scott trod upon when he was writing "The Lady of the Lake." Riding back from these Highlands, which are certainly beautiful, we came over a road that was little used and was very hilly, up and down all the time. The way our motors went flying up and down and around turns reminded us of being on a "roller coaster." Once both of us came very near going over a precipice at the top of a hill where there was a sharp turn. Our route to Glasgow was in a round about way through Dumbarton and following the Clyde river, which, near Glasgow, is lined with some of the largest ship-building plants in the world. I have been an enthusiast for sports and racing ever since I attended high school; some twelve years ago when in college I held a state record, and the last couple of years I have done more or less motor cycle racing. Many times on my trip I thought, "What's the use?" Why not take things easily and thoroughly enjoy ourselves as we have done on our entire trip? There is not near the wear on the machine nor the great likelihood of a dangerous or fatal injury. Practically all there is in racing is the little glory for a time to the one that wins.

A Hurried Visit to Ireland.

Sailing from Glasgow, we arrived in Belfast, land, about seven o'clock in the morning. Here found a large modern city and saw two of the lar boats in the world under construction. We loo around this city until nine-thirty, and were told was seventy-five or eighty miles to Dublin; so thought this would be just a nice, easy day's ri All the morning and until three in the afternoon kept stopping in the little villages and visit the people that live in the little one-storey, tile thatched roof cottages, which are all white-wash That day we rode some twelve or fifteen miles out our way, broke an exhaust valve, and had two pu tures. We had intended to spend several days Ireland, but found our boat for America sailed fr Liverpool the next noon; so we had to reach Dub in time to take the boat for Liverpool at eight o'cl that evening. At three o'clock we were in Newry, a found an Irish mile is much longer than an Engl mile, and we had seventy-four English miles betw us and Dublin. To add to our troubles, Bill accumulator gave out, and it is almost impossible get dry batteries anywhere in the Old Country, so took a rope and towed him over "The Rocky Ro to Dublin." The roads were fairly good, but the s face was rough, and there were a great many hil However, my Pierce never ran better, and by both of pedalling up the hills, and sticking to it, we reach Dublin in time to catch the boat. This was the m of an endurance run, for that length of time, I ha ever made. Our clothes were wet with perspiratio and Billy looked like a mud ball from trailing behi me in my dust.

On Board an Atlantic Liner.

Our trip abroad was ended in Liverpool. W hurriedly rushed our luggage and parts to the wha and found the gang plank pulled in and the boat rea t sail. It was only through the kindness of some the officers we met on the way over that we we allowed to take our motor cycles aboard uncrate This, however, gave us the opportunity on our retu voyage, with the assistance of the engineers, overhaul our motors thoroughly. These we found excellent condition considering the distance travelle which was about 4,000 miles. Our machines, wi riders, luggage, etc., weighed 390 and 420 lbs. respe tively, and we made the entire trip on one set of tyre but found it necessary to replace our rear covers wi spares we had carried over.

There is one more incident I am going to tell a I will close, for I have written more now than I ha expected when I started to write this account of o tour. Before sailing for Europe we neglected to ta out papers of declaration, so upon our return we ha a great deal of red tape to go through with at t American custom house to clear our motor cycle Without exaggerating, we had to wait our turn for signature or stamp on papers with fourteen differe clerks. The last clerk we went to, took the paper an examined it carefully, then turned and studied abo five minutes, looking all through a book he had besi him. Finally he said, "Where is the dog now; o the boat? I can't find any duty on dogs." I sai "What dog?" "Why, the Greyhound." The shi ping bill was made out, one Pierce motor cycle, a one Greyhound (ditto). We all then had a good laug

OCCASIONAL COMMENTS

BY "IXION"

Carbonised Deposit in Engines.

During the present year I have noticed how much more carbon is deposited on the innards of my engine by certain brands of oil, as compared with others. That perhaps is common knowledge, but I have also noticed that some brands deposit a much *softer* carbon than others. The deposits with one oil may be as hard as rock, and very difficult to remove from the somewhat inaccessible roof of the cylinder, whereas the deposit from another oil is easily scraped off by a few magic passes from a long-handled screwdriver. Some day, perhaps, we shall see our cylinder heads machined up to a glasslike polish inside, with a surface to which no deposit could cling at all obstinately. In the meantime, it is wise to discover a brand and grade of oil which result in the *minimum quantity* and the *softest quality* of deposit for the engine in use, and to clean the engine out every thousand miles. An ancient and thick deposit is remarkably hard to dislodge.

A Team Prize.

Now that the T.T. is over I cannot help thinking that a team prize would be a most desirable adjunct to the Manx prize list. As an old cross-country runner I am not used to seeing all the credit go to one crack who finishes first when a compact block of men from a rival club finish close behind him, a few seconds slower. Applying this to the T.T. Race, who deserves the most praise, the firm who, thanks to a single rider endowed with exceptional pluck and tuning powers, get one machine home near the top of the list, or the firm who get a compact little band of three or four machines home in a clump amongst the first dozen? In which several samples finish high up, whether one of them wins outright or not. Some day we may see a big motor cycle race between teams of three riders apiece representing the crack clubs of the country, but that day is not yet.

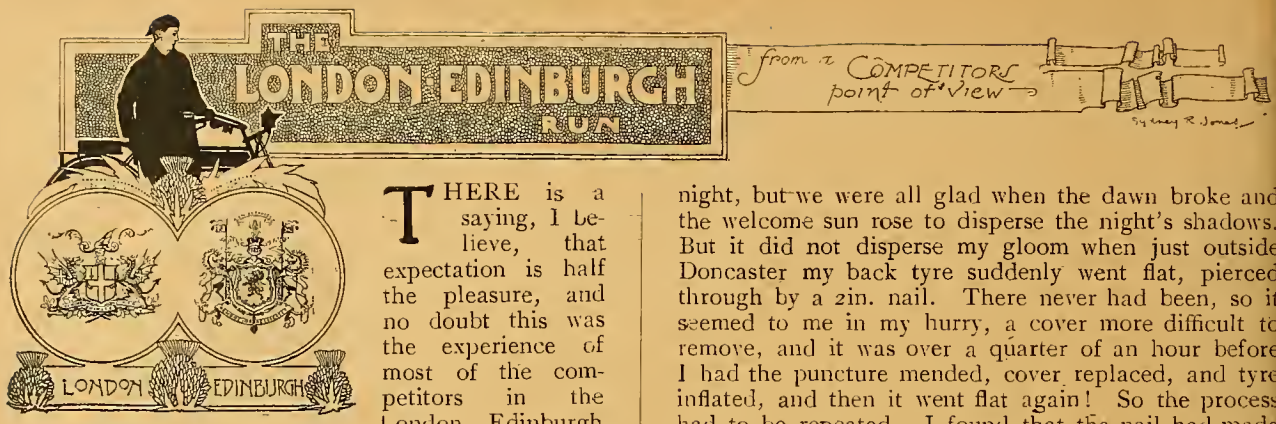
The Springing Question.

I am rather sorry that more of our big manufacturers are not working energetically at anti-vibration devices of a more wholesale character than mere insulated forks and saddle mountings. Without doubt the non-sporting type of rider is vastly on the increase, and it is vibration which is going to hamper our invasion of this field. The sporting and utilitarian riders are as far as the poles asunder. The one is young and a trifle volatile—he rather enjoys hanging on by his eyebrows while the machine bucks and cavorts over a six inch rut. The other is middle-aged and a trifle fussy and valetudinarian; he hates the jars his spine and wrists receive from most modern machines on an ordinary potholy highway, and as for the real bumps he is subjected to on the rough byroads along which business often drives him, they inspire remarks which contradict his apparent respectability. Quite a number of these up-to-date "knights of the road" have written me of late asking me where they can get a machine as reliable as the so-and-so with a properly sprung and cushioned frame. A light, perfectly sprung frame is the crying need of the market to-day, and I know few people who are aiming at it. I say "light" advisedly, because the type of rider I refer to has no intention of using a 250 lb. touring mount.

Reserve Petrol.

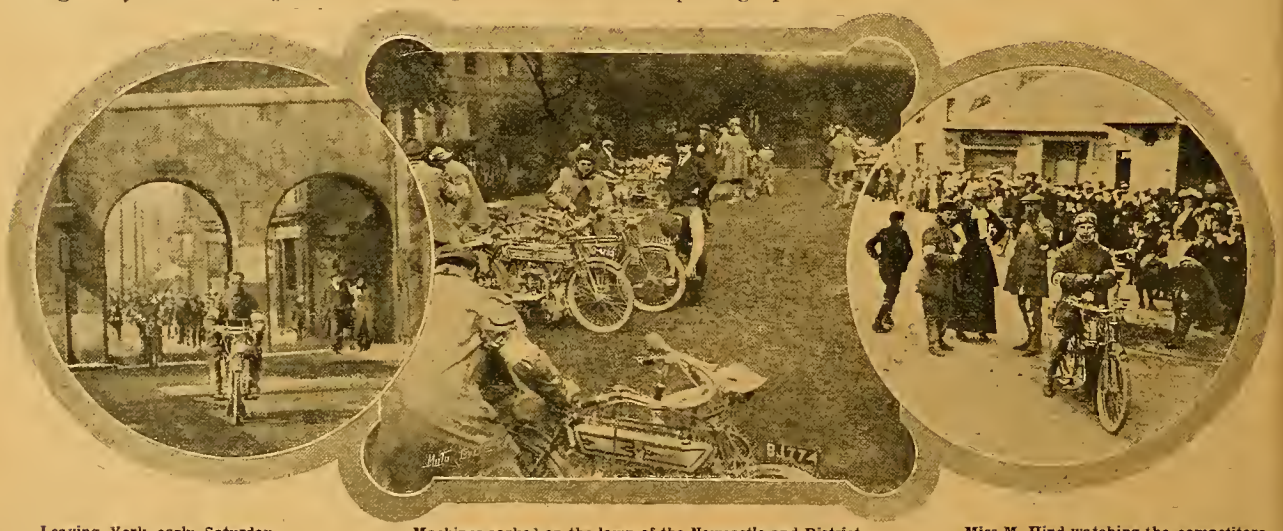
Even with a good gauge some anxiety is often present in a rider's mind about the quantity of spirit remaining in his tank. He is too lazy, maybe, to dismount and read the vertical gauge set in the side of his tank (I must admit I prefer the horizontal type of gauge in the tank top, though it is comparatively obsolete nowadays), and he trickles gaily on till the anxiety becomes acute, when he finds to his horror that he has barely a cupful of spirit remaining, and not the haziest notion as to where the next garage is. I have been using a patent three-way petrol tap. It has the normal "off" and "on" positions, but the usual "on" position, in which the carburetter can drain the tank, is reserved for emergencies. In the ordinary way the tap is set in a special "on" position, which merely opens a special stub petrol pipe, projecting vertically upwards an inch or so from the tank bottom. When the engine stops for want of petrol, the spirit below this level is still in the tank, and will suffice to propel the machine for twenty miles or more, according to the length of the stub pipe. This is a very ingenious and comforting little device, which deserves to be better known.

A group of members of the Edinburgh M.C.C., photographed outside the residence of Col. Wardlaw Ramsay, the honorary president.



THERE is a saying, I believe, that expectation is half the pleasure, and no doubt this was the experience of most of the competitors in the London - Edinburgh Run. For weeks past the selection of sparking plugs, spare belts, new tyres, and the tuning up of a motor cycle had been the order of the day. Perhaps, as in my case, a new machine was going to be tried over the lengthy course. So with engines tuned to a hair at 9 p.m. on the 13th ult., the competitors rode off one by one into the dark and commenced the long and nearly always eventful ride to the Northern capital. Thanks to the excellent arrangements which had been made by the M.C.C., no one should have experienced the least difficulty in finding his way out of London, or, for that matter, through any of the large towns through which we passed, and it was entirely my own fault that I took a wrong turning in Newcastle and went for some miles in the wrong direction before discovering my mistake, and here a cold shiver went down my back that I might run out of petrol when off the route. Night riding is an art. In the dark a breakdown or puncture is heart-breaking, and what is so simple to put to rights during the day is crowned with difficulties at night. I nearly came to grief near Stevenage where the road was in course of repair and the stones not rolled in. Why, by the way, is not a law passed making it obligatory for contractors to leave a red lamp burning in front and behind these patches of unrolled stones?

Grantham was reached about 2.30 a.m., where a repast had been prepared. It had been a glorious night, but we were all glad when the dawn broke and the welcome sun rose to disperse the night's shadows. But it did not disperse my gloom when just outside Doncaster my back tyre suddenly went flat, pierced through by a 2in. nail. There never had been, so it seemed to me in my hurry, a cover more difficult to remove, and it was over a quarter of an hour before I had the puncture mended, cover replaced, and tyre inflated, and then it went flat again! So the process had to be repeated. I found that the nail had made two punctures, which at any other time, I suppose, I should have noticed at the first onset. How true it is that troubles never come singly. No sooner had I remounted, determined to bustle along and make up for time lost, than I found that the plug in the back cylinder was sparking so badly as to necessitate a change. And a Sandow must have screwed it in, so difficult was it to remove! Owing to these mishaps I arrived at York at 7.59 a.m., eight minutes late (not counting the fifteen minutes allowed), so I had only just time to fill up the petrol and oil tanks, and escape from the clutches of a particularly strong-minded photographer.



Leaving York early Saturday morning.

Machines parked on the lawn of the Newcastle and District Motor Club-house.

Miss M. Hind watching the competitors leave Jedburgh. W. Price (8½ h.p. Rex) is ready to start.

I left York at 8.5. It was here that the second breakfast was provided for all who were either early or lucky enough to take advantage of the arrangements. On leaving York it nearly frightened me to death to come suddenly on a string of policemen (one just outside York, and one in every village as far as Thirsk) with huge notebooks in one hand and watches the size of turnips in the other. I was informed later that they had no sinister intentions towards the competitors, but that they were only timing us to satisfy their curiosity, or for amusement. For many a long mile I pictured myself in the dock, and thought out a defence which, I am sure, would have reduced any court to tears. I should here like to testify to the extreme consideration shown to us by the police, and

The London to Edinburgh Run.—

to acknowledge the help they so readily accorded us on those occasions when we had need of it. I was struck by the general interest taken in the run, and all along the route there were groups of spectators to watch the procession of motor cyclists. Their comments were always to the point, and sometimes amusing. One old dame across the border asked her aged spouse, "Weer do e' carry t' coal?"

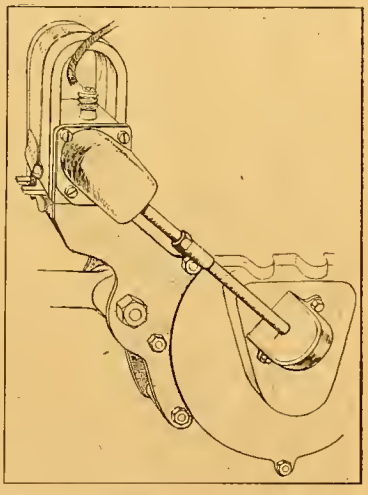
Some of the Scottish scenery was very fine, and the Cheviots, which had to be surmounted, looked their best, and I should have liked them even better if at the steepest part of the hill my belt had not commenced to slip and forced me to pedal. How beautiful everything looks when one's mount is pulling its best! And this probably accounts for my remembering a scene near Earston, I think, when a moorland rolling from the dark and far-off Cotton Hills, whose summits clouds enshrouded, looked purple in the distance, but seeming to gather colour in its course, tumbled to our feet garbed in all the varied hues of spring. One other scene where field and furrow, wooded hills and shaded valleys, stretched out in vast expanse beneath us; and on a sunny slope half hidden by large clumps of trees a hamlet lay; and past its tiny church and old-world mill a shallow stream was slowly winding, as if afraid to face the world beyond. One of the bicycles here appeared to reciprocate the feeling. Near Liberton there was a small boy with a long rope and a sportive goat, and their combination nearly effected my downfall. On another occasion when passing two other competitors and riding three abreast, the back tyre of the cycle on my left burst, causing the rider to swerve violently over in my direction brushing my arm, and giving me a momentary vision of biting the dust. I arrived at 6.36 p.m. at Edinburgh with plenty of time in hand, having had an interesting and thoroughly enjoyable ride. My 2¼ Enfield carried me extraordinarily well, and never gave me a moment's anxiety.—P. J. HARKNESS (Capt.)

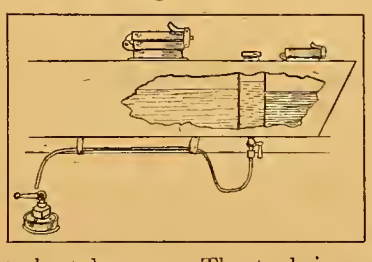
Spectators lined the main street of Jedburgh. Our picture shows a not too energetic competitor securing an easy start.

The contributor of this article, Captain P. J. Harkness, who rode his 2¼ h.p. Royal Enfield in the London-Edinburgh run and won the club gold medal.

SOME T.T. NOVELTIES.

WE saw several interesting features on the Moveo machines, which hail from Preston. The whole power plant is contained in one unit, which can be bodily removed from the cycle frame by the undoing of a couple of nuts and the disconnection of the petrol and oil pipes and the control wires. The magneto is mounted on a platform at the rear of the engine, this platform being formed in one with the main engine bearers. The magneto itself is readily detachable by means of a wing nut which secures the holding-down strap. The base of the magneto is held in place by a couple of spigots, which fit into holes bored in the platform. The magneto drive is by means of a double bevel gear, the pinions of which run in grease-tight cases. The transmission-shaft consists of two halves screwed together in such a way that this shaft can be lengthened, thus allowing any wear in either or both of the bevels to be taken up. The tank is made with a small compartment between the oil and petrol compartments, which serves as a container for paraffin.





CURRENT CHAT

TIME TO LIGHT LAMPS

June	2	...(GREENWICH)	9.6	p.m.
,,	4	... ...	9.8	,,
,,	6	... ...	9.10	,,
,,	8	... ...	9.12	,,

A First Aid Motor Cycle.

The St. John Ambulance Brigade, Park Vale Division, Leicester, has the use of a first-aid motor bicycle belonging to a private owner. This machine carries everything necessary for various kinds of accidents, including a portable stretcher which is long enough to take a person 6ft. high. The machine is a Triumph, and across the back carrier are slung pannier bags bearing the well-known St. John Ambulance sign.

SPECIAL FEATURES

THE INTERNATIONAL TOURIST TROPHY RACE (Specially Illustrated Description)
THE LONDON TO EDINBURGH RUN: From a Competitor's Point of View.
THROUGH GREAT BRITAIN AND THE CONTINENT (concluded from page 465).

Police Traps.

On the London Road, Thornton Heath, between the Pond and Norbury Station, on various stretches of road about five hundred yards in length, the police are "disguised" in lounge suits and straw hats.

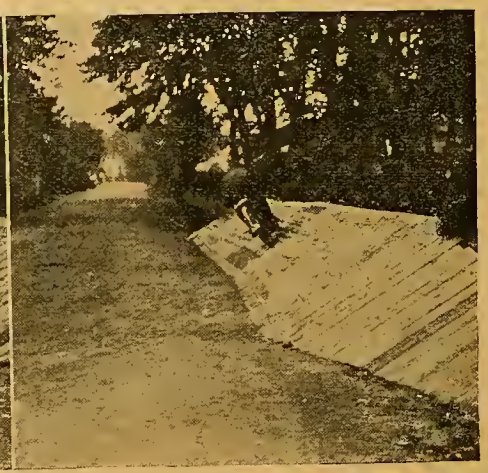
Hill-climb in New South Wales.

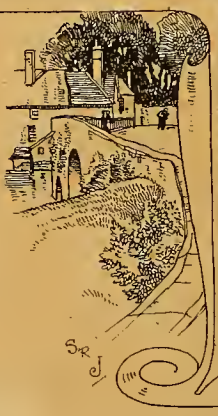
The Motor Cycle Club of N.S. Wales held a hill-climb, open to members of the N.S.W. Cyclists' Union, on the Baden Hill, Coogee, Sydney, on Saturday, April 16th. There were sixteen competitors, who were first called upon to make a timed trial climb for the purpose of handicapping. Any competitor who proved more than ten per cent. faster than his trial climb was disqualified. Competitors raced in pairs, winners racing in pairs again, until the final winner was discovered. In the final, W. L. Cobb (3½ h.p. Triumph), 6s., time 36⅗s., and A. Levi (2¼ h.p. F.N.), 15s., time 45⅗s., dead-heated, but the latter was disqualified under the aforementioned rule. Fastest time was made by the club's hon. sec., W. W. Reynolds, whose 3½ h.p. Triumph climbed the hill in 32s.

Sidecars and Single Gears.

That it is possible to tour long distances with a single-cylinder motor bicycle and sidecar with fixed gear is amply proved by the experience of Mr. A. Cecil Sheppard, of Bath, who recently took a passenger weighing eleven stones, and two fair-sized luggage bags, from Bath to Stirling, and returned *viâ* Edinburgh, Dunbar, Newcastle, and York. The run from York to Bath, about 230 miles, was made without a stop. Slight trouble was experienced with the engine in one section through being put off with an inferior oil [a common complaint.—Ed.], but the total distance travelled was 930 miles in seven days, a very good performance under the circumstances.

Practising Incidents in connection with the Tourist Trophy Race.





1. E. S. Myers has a little difference of opinion with his Scott at Ballacraine.

2. R. Lord (3½ h.p. Rex) trying the artificial bank at the same corner.

3. F. W. Dayrell repairing a puncture in the rear wheel of his 5 h.p. Bat, assisted by W. E. Cook, who is so well-known to Brooklands habitués.

Youthful T.T. Competitors.

Fred Turvey, of Sunderland, was, we believe, the youngest competitor in the T.T. Race. He is 18 years of age. David C. Bolton, who hails from Oakamoor, Staffs, is only a year older.

Specifications of T.T. Winners' Machines.

C. R. Collier's winning Matchless had a 5 h.p. J.A.P. twin-cylinder 85½ × 58 mm. V type engine, capacity 666 c.c., with overhead mechanically-operated valves, Amac carburetter, Bosch magneto and plugs, Hutchinson tyres, Shamrock Gloria belt, Brooks saddle, and Davison tank stoppers. He used Pratt's .680 spirit and Moebius oil.

W. Creyton's Triumph (the first single-cylinder to finish) was a standard T.T. model, 85 × 88 mm. engine, capacity 499 c.c., Bosch magneto, Dunlop tyres, Shamrock Gloria belt, Forward fastener, Middlemore saddle. He used Pratt's spirit and Price's oil.

An Echo of the Edinburgh Run.

An energetic member of the M.C.C. Committee who was largely responsible for the success of the competition was Mr. F. J. Jenkins, who on a 15 h.p. Rover car preceded the first of the competitors on both the outward and the homeward journeys, and saw that every checker and timekeeper was in his place. Accompanying him were Mr. R. H. Head, the chairman, and Mr. A. Candler, the secretary. Where they thought it desirable these three far-seeing officials posted extra checkers to show the way, and additional arrows to mark the route. Thanks to the 15 h.p. Rover the officials were able to put the finishing touches to their excellent organisation. We do not know Mr. Jenkins's motto, but there is no doubt it should be "*Finis coronat opus.*"

Scottish Six Days' Trial.

The organising committee of the Scottish Six Days' Trial has decided to extend the date of entry till Saturday next, June 4th. This has been rendered necessary on account of the date being rather close to the Tourist Trophy Race, which has so fully occupied the attention of motor cyclists recently. Several special prizes are being given for this event, the latest being a special prize to the value of £5 for the best performance on Ross's motor spirit, supplies of which will be obtainable all along the route. Manufacturers of lightweights are reminded that a special prize is being presented by the Edinburgh M.C.C. for the best performance of a lightweight machine, which with an extra ten minutes on each section for this type should prove an inducement. Passing as this trial does through the most beautiful parts of Scotland, it will prove a most enjoyable trip to those participating. The following is a list of the entries up-to-date: S. J. K. Thompson (7-8 h.p. Bat and sidecar), P. W. Bischoff (3½ h.p. Triumph), W. Pattullo (3½ h.p. Triumph), J. T. Wood (3½ h.p. Zenith Gradua), W. Pratt (3½ h.p. Phelon and Moore), Bert Yates (3½ h.p. Humber), W. W. Douglas (2¾ h.p. Douglas), G. L. Fletcher (2¾ h.p. Douglas), J. S. Holroyd (1½ h.p. Motosacoche), J. Donaldson (3½ h.p Bat), and H. S. Bilbe (3½ h.p. Humber).

FUTURE EVENTS.

June 4—Motor Cycling Club second private race meeting and gymkhana at Brooklands.
" 6-11—Scottish Six Days' Open Reliability Trial, organised by Edinburgh M.C.C.
" 18—M.C.C. TEAM TRIAL FOR "THE MOTOR CYCLE" CHALLENGE CUP. Competing Teams: Motor Cycling Club (holders), Coventry and Warwickshire M.C., Bristol B. and M.C., Streatham and District M.C., Sutton Coldfield A.C., Edinburgh M.C.C., Southern M.C., Harrogate and District M.C.C., Great Yarmouth and District M.C.C., Herts. County A.C., Essex M.C., N.W. London M.C.C., Oxford M.C.C., Nottingham and District M.C.C., and Sheffield and Hallamshire M.C.
" 25—Bradford M.C.C. Open Hill-climb.
July 4-9—A.C.U. End-to-end Reliability Trial.
" 13—Open Irish End-to-end Reliability Trial, promoted by the Ulster Centre.

East Sussex M.C.C.

On Wednesday, the 25th ult., a reliability and speed-judging contest was held on a nine mile course four times round, which went off splendidly. Marks were given for ease of starting, nearest to eighteen miles per hour, brake test, and condition of machine at finish.

The brake test was proved by having secret controls, who hid in the hedges, and as soon as the machine was opposite the hiding-place the controller sprang out calling upon the rider to stop. The best performance was by C. Dale, riding a 3½ h.p. Triumph, who pulled up within seven yards.

The nearest approach to correct time was by G. T. Scott, who was only 6m. in advance of correct time. He should have been 1h. 56m. 40s., instead of which he was 1h. 50m. 35s.

Although of quite recent formation, the club is going strong, numbering twenty-seven members to date. Runs are well attended, and great enthusiasm is being shown by individual members of the club in competitions, which are only small at present.

Motor Cycling Club.

A very full programme of races and gymkhana sports has been obtained for the race meeting and gymkhana, which takes place at Brooklands on Saturday, June 4th. The two most popular items of the programme are the hill-climb and the skilful driving competition, to win which about forty competitors will strive. For the invitation race, a really representative entry of 3½ h.p. single-cylinder machines has been obtained. It is hoped to secure a good sporting match which will demonstrate the relative speed qualities of the makes represented. Tickets can be obtained from S. H. Fry, 5, Highbury Grove, N.

Two difficult turns on Snaefell Mountain (see pages 514F and 514G).

J. Baxter (5 h.p. Rex) negotiating one of the bends in good style. S. C. Perrymen (5 h.p. Blumfield) travelling well.

SATURDAY'S RACING AT BROOKLANDS.

THE mere fact that there is a race meeting at Brooklands seems to have a most desirable effect on the weather, and last Saturday was no exception to the rule, for ideal conditions favoured the third meeting of the year, which had been postponed from May 16th. A fair number of people turned up to witness the motor racing and flying, and, as usual, the motor cycle races were best filled. It was natural to expect that, with the Tourist Trophy Race in the Isle of Man only two days before, and the hill-climb actually the day before, entries for the motor cycle races would be affected. This was not the case, as there were only four withdrawals from the original entries, and three new men entered after the postponement. There were, on the other hand, a good many non-starters in both races.

It is always a difficult matter to follow the motor cycle races, as the numbers and colours are never visible from the paddock; in fact, the latter might easily be dispensed with, and nobody would be any worse off. Some of the motor cyclists still persisted in riding about the paddock before their race, and were reprimanded by Major Lloyd.

The May Handicap.

The first motor cycle race was at 2.20, and was styled the May Motor Cycle Handicap for all classes of motor bicycles, the cubic capacity of whose engines exceeds 500 and does not exceed 1,000 cubic centimetres, and the distance was 8½ miles. Of fifteen entrants seven did not start, including the Collier Bros., leaving eight to compete as follows:

Rider and machine.	c.c.	start.
W. E. Cook (N.L.G.)	995	scratch
A. Oberländer (N.S.U.)	995	0m. 9s.
W. Chitty (Frays)	964	0m. 9s.
H. V. Colver (Matchless)	666	0m. 21s.
J. T. Bashall (Bat)	666	0m. 30s.
H. E. Parker (N.L.G.)	945	0m. 30s.
F. H. Arnott (V.S.)	662	1m. 27s.
H. G. Partridge (N.S.U.)	808	1m. 33s.

Partridge had far too much start and was never caught, although Bashall was well up at the finish and was barely a quarter of a mile behind. After coming under the bridge for a second time Cook was seen to stop, and the order of finishing was Partridge, Bashall, Oberländer, Colver, Chitty, Arnott, and Parker. About half a mile separated Partridge and Oberländer at the finish, and the men were very much spread out, there being no close racing. The winner's average speed was 55¾ miles per hour.

The Whitsun Handicap.

In the other race, the Whitsun Motor Cycle Handicap, for all classes of machines whose cubic capacity does not exceed 670 cubic centimetres, there were twenty-nine entrants, of whom twenty-two started, the Colliers again being absentees. The starters were:

Rider and machine.	c.c.	Start.
H. V. Colver (Matchless)	666	scratch
J. T. Bashall (Bat)	666	0m. 6s.
W. E. Cook (N.L.G.)	482	0m. 40s.
F. H. Arnott (V.S.)	663	0m. 44s.
R. T. Exshaw (N.L.G.)	482	0m. 52s.
F. E. Barker (Buchet)	331	0m. 56s.
A. Brunton (New Century)	349	0m. 56s.
V. Yates (Rex)	499	1m. 2s.
A. Wilkie (Triumph)	499	1m. 2s.
W. A. Jacobs (Rex)	499	1m. 2s.
Capt. Sir R. K. Arbuthnot, Bart., R.N. (Triumph)	477	1m. 2s.
W. Chitty (Frays)	340	1m. 2s.
H. Hunter (Triumph)	499	1m. 12s.
G. F. Hunter (Triumph)	499	1m. 12s.
J. Kennedy, jun. (Triumph)	499	1m. 12s.
A. C. Maitland (Trump)	488	1m. 12s.
W. Dewar (Triumph)	477	1m. 20s.
A. Oberländer (N.S.U.)	314	1m. 28s.
H. G. Partridge (N.S.U.)	314	1m. 28s.
R. C. Sykes (Quadrant)	349	1m. 32s.
H. C. Tyler (Exmouth)	269	1m. 38s.
F. E. Broome (F.N.)	413	1m. 48s.

Broome started badly, but once again the scratch men were handicapped out. Maitland on his Trump overhauled all in front of him, and got home some two or three hundred yards from Dewar, who was a long way ahead of G. F. Hunter. Then followed Yates, Barker, Sykes, Bashall, Colver, Jacobs, Exshaw, Tyler, Brunton, Cook, Wilkie, Oberländer, and Arnott in the order named. The winner's average speed was again 55¾ m.p.h.

The handicappers were Messrs. A. V. Ebblewhite and T. D. Dutton, while the former officiated as starter and the latter as circuit counter.

Competitors in the Whitsun Handicap at Brooklands last Saturday.

NEXT BROOKLANDS MEETING.

The following motor cycle races will be run at Brooklands on the 18th inst., under the auspices of the Brooklands Automobile Racing Club. Entries close at noon on the 9th inst.

THE SUMMER MOTOR CYCLE HANDICAP. Entrant of winner to receive ten sovs. or cup at option. Second, five sovs. Third, three sovs. Engines not exceeding 670 c.c. capacity. Distance about 5½ miles.

JUNE MOTOR CYCLE HANDICAP. Entrant of winner to receive ten sovs. or cup at option. Second, five sovs. Third, three sovs. For motor bicycles with engines between 500 and 1,000 c.c. Distance about eight miles.

LONDON-EDINBURGH RUN.

In the list of awards published in *The Motor Cycle* last week, W. Chater Lea (7-9 h.p. Chater Lea and sidecar) should have been under the heading of the gold medal winners, and J. Winslow (5 h.p. Rex) should be added to the list of bronze medal winners. The majority of our readers are doubtless unaware that the 7-9 h.p. Chater Lea was fitted with this firm's new model twin-cylinder 85 mm. × 85 mm. engine, which made its first appearance in open competition in the above run. This 7-9 h.p. machine is designed primarily for passenger work, for which it is eminently suitable.

T.T. RACE PRELIMINARIES.

MEETING AT DOUGLAS. THE BRAKE AND SILENCER TESTS.

On Tuesday evening last week a meeting was held at the Sefton Hotel, at which Mr. J. R. Nisbet, who, as clerk of the course, was practically in supreme command, addressed the assembly. He called the men's attention to the fact that the brakes and silencers would be tested at St. John's at 10.30 on Wednesday, and that on their prompt attendance then and on the day of the race depended the good name of the A.C.U. and the success of the race. On the Wednesday armlets for the men and attendants would be given out. He pointed out how the men would be allowed one attendant each, and that this rule would be strictly enforced. Mr. Nisbet expressed himself pleased to see Brewster present, and said he had his sound constitution to thank for his rapid recovery. After going into sundry details, Mr. Nisbet pointed out the seriousness of the competition, that it was a serious trade event, and in the course there were several obviously dangerous points, at which he urged the competitors to keep cool and collected, and remember they were sportsmen and give and take with one another. There should be no passing at corners or within reasonable distance of such dangerous places as Ballacraine. As regards the arrangements, there would be on the course about twenty police (all first-aid men), doctors at the most dangerous places, marshals and boy scouts; there would be two depots, at either of which a man could station his attendant—that at St. John's would be obvious, but the Kirk Michael depot would be marked by a green banner.

At 10.30 on Wednesday morning the competitors had their last ordeals to go through—the silencer and brake tests. On assembling at St. John's all the men were sent on the direct Glen Helen Road, past the historic Tynwald Hill, over a bridge spanning a babbling brook at the foot of the steep incline utilised last year for the two final tests. The ever-energetic Mr. Nisbet marshalled them at the foot, and in response to signals from the chief marshal, Mr. R. D. F. Paul, they were sent up singly, Messrs. J. Lyons-Sampson, A. G. Reynolds, and H. P. E. Harding judging the silencers.

On their arrival at the summit the competitors turned to the left and were lined up in the order in which they reached him by Mr. E. M. P. Boileau, forming up in line along the Upper Peel Road. The silencers were deemed satisfactory, and anything in the nature of a fake was thus rendered discernible. Actually nothing of the kind was found, but pre-eminently above the others the Scotts and Indians distinguished themselves as regards absence of noise.

Some delay was occasioned by several competitors, some of whom could not climb the hills, and by some who were not ready. In the brake test the judges stood halfway down the short steep hill, and at the waving of a flag each man had to apply his brakes. Here again the judges passed all as being satisfactory. The road was signalled clear, and each man was sent down as nearly as possible in order. As they passed the judges each man went to the Green at St. John's, and took up his post where his wooden front number plate was set out. When every man was in his place the judges inspected the machines in order, seeing that every motor bicycle conformed with the regulations.

Following the judges came Mr. V. A. Holroyd with the armlets—white armlets for the riders and yellow armlets for the one assistant allowed to each man—while Mr. Beasley followed with the seals and wire. The frames only were sealed. The examination passed off well enough, but some difficulty was experienced with the tyres. According to the rules, each competitor had to use 2¼in. covers, and in some instances the cover was found to measure 2⅛in. This caused some discussion among the judges, who measured a tyre on one of the marshal's machines and found it to be 2⅛in. across. Consequently this standard was adopted,

J. R. Nisbet and G. E. Roberts despatching competitors singly for the silencer and brake tests on a steep gradient near St. John's, the day prior to the race.

BRILLIANT weather again smiled on Mona's Isle, its sporting inhabitants, and on the competitors and numerous spectators who had come to see the great event. After an early breakfast we left Douglas with the sun shining brightly in a cloudless sky, an ideal morning for the great road race. St. John's looked its best, and as we arrived the chief officials were busy putting the finishing touches to the organisation. Down the direct road to Glen Helen the men were arranged on each side against pegs bearing their correct numbers. Messrs. G. E. Roberts, Otto Thomas, and E. M. P. Boileau were busy driving in pegs in the depôt enclosure marking where the various machines were to draw up. These were grouped according to the different makes, and when the task was quickly over, petrol, oil, and other supplies were smartly laid out by the attendants behind the groups of numbers. The notice board with Mr. J. Baines in command was, as may be supposed, double as large as last year, and at the end of this the depôt was arranged. At 9.30 a nasty sea-fog blew over and enveloped Slieau Whuallian, the mountain which dominates St. John's, and threatened to envelope the whole island. However, we were all cheered by the local weather prophets, who said it only meant heat, and their forecasts proved true. Near the start there lives a farmer who appears to be one of those people who like to assert their rights, and to prove that he was entitled to use the roads as long as they were open he chose to drive his cart on the highways during practice, though the other islanders, true sportsmen that they are, desisted. Just at the moment when all the competitors were at their posts and the spectators were lookingat them with interest, the farmer, just to show he had a right to be on the road, drove down the line, and naturally met with some opposition, which he in turn resented. Shouts of derision arose, and when he tried to use his whip on those objecting to his presence and it was taken away from him, the welkin rang with cheers. The genial Manx police came forward and gently remonstrated, but all to no purpose. Deprived of his whip, the farmer used his reins on a too obtrusive spectator, which at once settled the matter. The pony was immediately removed from the shafts and the cart shoved on the green, while the unsportsmanlike owner was left with the animal using language which was far more forcible than polite. Yells and howls of derision followed, mixed with reports from a toy pistol, which set the animal plunging, and smashed Bentley's front number plate. Fortunately Mr. Salmon made a suggestion to Mr. Straight, who came forward and laying a kindly hand on the farmer's shoulder said, "You seem to be a strong man, come and help us to keep order," and, putting a "committee" badge on the old fellow's arm, won him over at once, thus putting an end to all bad feeling and quickly turning an enemy into a firm friend.

With regard to the competitors the following two alterations were made at the last moment. Pollard took Silver's place, and Fenn was appointed to ride Ariel No. 61. Those who were definitely known not to be starting were A. E. Woodman, who met with the sad accident in practice, and the similarly unfortunate Brewster, Quentin Smith, and Findlater, while beside these J. H. R. Loxham (whose twin Moveo was not really ready in time) changed machines with Houlding and rode as No. 41, F. G. Edmonds who had not arrived, Bagshaw whose entry had been withdrawn. Savory and Shaw did not figure in the timekeepers' list. A further addition was Abbott, who burst a tyre immediately before the start and had no time in which to change the cover. J. Baxter caused much amusement by carrying his tyre pump in his gaiter. The above will give the reader some idea of the preliminaries, but a few further words about the arrangements may be of interest. A telephone had been installed between St. John's and Ballacraine, and the instrument at the start stood on a platform on which Mr. Nisbet could keep in touch with the marshals under him in both places. We carefully examined Ballacraine Corner on our way out, and noted how vastly it had been improved, as at the very point where dry skidding might take place the tarmac had been laid down. Except for the mist which at 10 a.m. had lifted a little, the weather conditions were perfect; the dust was certainly bad in places, but the road in the neighbourhood of the start had been watered. A light south-westerly breeze blew in the direction of Ballacraine. At 10.12 the first pair of competitors began to move out under the direction of the marshals, and as H. A. Collier came in sight of the huge crowd just disgorged by the last train, cheers rent the air. Round them were grouped Ebblewhite and Glazebrook, the timekeepers, and the judges, Messrs. Lyons, Sampson, Reynolds, and Harding, while a battery of cameras were trained on them.

The Start at 10-15 a.m.

At 10.15 H. A. Collier (5 h.p. Matchless) and C. E. Bennett (5 h.p. Indian) started together, the Indian fired first but Collier was soon under way. The rest followed in pairs at 20s. intervals. Evans, another favourite, and D. R. Clarke, both on Indians, were then sent off, while Bentley, another Indian rider, started alone. Marshall and Newsome, both on Triumphs, got off smartly amid cheers. Creyton, the Manxman (3½ h.p. Triumph), and, of course, a favourite with his compatriots, and Franklin (5 h.p. Indian) both got off well, while Drury (5 h.p. J.A.P.-Chater Lea) and H. V. Colver (5 h.p. Matchless) also started in good style. C. R. Collier (5 h.p. Matchless), who was cheered to the echo, and Pollard (3½ h.p. Quadrant), went off together, Collier getting away smartly and kicking against the ground to help his engine. Godfrey, who came in for the acclamation of the populace, and Alexander, both on 3½ h.p. Rexes,

The International Motor Cycle Tourist Trophy Race.—

were next despatched, Frank Applebee (Rex) and Sproston, also on a Rex, whose plucky performance last September was not forgotten, followed. Myers (5 h.p. Scott) and W. H. Bashall (5 h.p. Bat) were the next pair. Thanks to his free engine and two-speed gear Myers was away well before the other machine had begun to fire. J. T. Bashall and H. H. Bowen, whose practice performances had won them the popular favour, were next to go, both on 5 h.p. Bats. Norton on a 3½ h.p. Norton and Witham on a 5 h.p. Bat then left, the Bat getting away first. McNab (3½ h.p. Trump) and J. R. Alexander, jun. (5 h.p. Indian), followed, McNab quickly disposing of his bulky being into the smallest possible space. Stevens and Reed, one on a 5 h.p. and the other on a 3½ h.p. Dot, were then sent off. Butler, the other 5 h.p. Dot rider, and Phillips on the 5 h.p. Scott, were sent off next, the latter making a splendid start. Moorhouse (5 h.p. Indian) started alone. The remainder were sent off as follows: H. L. Cooper (3½ h.p. Triumph) and H. R. Fowler (3½ h.p. Rex), J. Scriven (4 h.p. Rex) and J. W. Adamson (3½ h.p. Triumph), C. E. Murphy (3½ h.p. Triumph) alone, D. C. Bolton (4 h.p. Rex) and H. Houlding (3½ h.p. Moveo), Howard Smith (3½ h.p. Triumph) alone, J. F. Crundall (3½ h.p. Humber) alone, B. Yates (3½ h.p. Humber) and J. Baxter (4 h.p. Rex), F. Mackay (4 h.p. Rex) and W. E. Grange (3½ h.p. Rex), J. Gibson (3½ h.p. Trump) and D. B. Rea (3½ h.p. Moveo), G. E. Stanley (5 h.p. Premier) alone; B. Jones (5 h.p. Premier) and F. W. Barnes (3½ h.p. Zenith Gradua), P. Weatherilt (3½ h.p. Zenith Gradua) and J. R. Woodward (3½ h.p. Rex), J. Slaughter and A. G. Fenn (both on 3½ h.p. Ariels), W. G. McMinnies (3½ h.p. Triumph) and F. W. Dayrell (5 h.p. Bat), H. J. Scale (3½ h.p. Scale) and F. W. Chase (3½ h.p. Centaur), S. C. Perryman and N. F. Holder (both on 5 h.p. Blumfields), F. Turvey (3½ h.p. Humber) and H. Martin (5 h.p. A.S.L.), R. Pimm (3½ h.p. A.S.L.) alone, E. F. Baxter (4 h.p. Rex) and F. C. Wood (3½ h.p. N.S.U.), J. F. Sirrett (3½ h.p. N.S.U.) and W. Heaton (5 h.p. N.S.U.), A. Oberländer (5 h.p. N.S.U.), R. Lord (3½ h.p. Rex), and F. W. Applebee (3½ h.p. Centaur), R. Ellis (3½ h.p. Rex) alone, D. M. Brown (3½ h.p. Humber) and S. Wright (3½ h.p. Humber). The last to start was J. Lang (5 h.p. Tee Bee). In all seventy-three started out of eighty-three. The number thirteen was not allotted. All of the crowd waited in silent expectation. The start had been most successfully carried out, and it only remained to spot the leader of the procession.

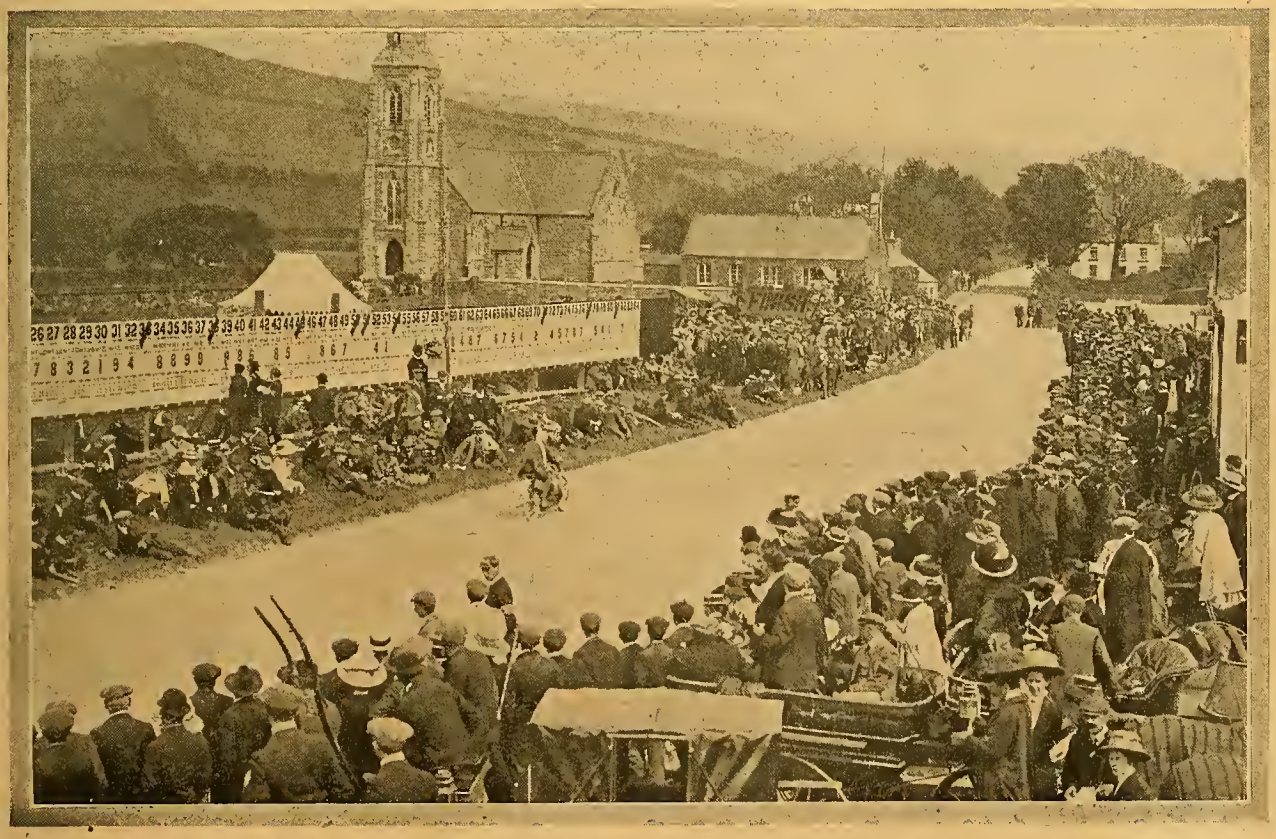
Incidents of the First Lap.

In a few minutes H. A. Collier flew past, well ahead of everybody else. It would be useless to give the order in which the others *passed*, as it would be meaningless, but below are given the first six in each lap in their order of time.

The following shows the positions of the leaders at the end of the first round:

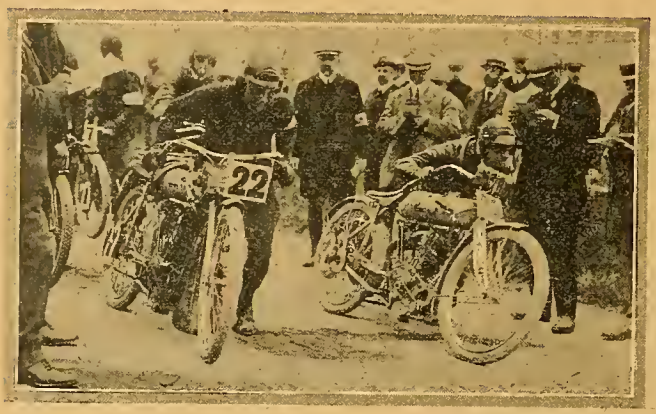
		Lap time.
1.	W. H. Bashall (5 h.p. Bat)	18m. 15s.
2.	H. H. Bowen (5 h.p. Bat)	18m. 28s.
3.	B. Jones (5 h.p. Premier)	18m. 33s.
4.	H. Reed (5 h.p. Dot)	18m. 44s.
5.	C. R. Collier (5 h.p. Matchless) ...	18m. 54s.
6.	F. W. Dayrell (5 h.p. Bat)	18m. 58s.

The first round was full of incidents. J. T. Bashall retired with a broken pulley near the Devil's Elbow. A message was delivered by a boy scout that a doctor was wanted at Glen Helen. This, it is presumed, was for Bennett, who fell at the foot of Creg Willey's Hill, suffered several flesh wounds, and had to withdraw. Butler retired near Peel. Yates was put out of the running with engine trouble between Kirk Michael and the Devil's Elbow. Rea was stopped by a broken pulley. Pimm stopped with a flat front tyre at the St. John's depot, and Lee Evans did likewise. Martin had trouble with both brakes and fell at Creg Willey's Hill, and later had to retire through valve trouble. S. Wright fell out with a broken crankshaft. Bentley's back tyre burst while travelling at high speed coming down from Creg Willey, but fortunately without falling off. Godfrey retired through a broken piston. Scale broke his pulley near Ballig Bridge, and Barnes and Weatherilt nearly collided near St. Germans.



Scene at St. John's, the starting and finishing point. The scoring board is plainly discernible. N. F. Holder (5 h.p. Blumfield) is the rider in the picture.

The International Motor Cycle Tourist Trophy Race.—



J. T. Bashall and H. H. Bowen, two private owners of Bat-J.A.P. machines starting. Bowen led for three laps.

In the second lap Franklin retired with inner tube trouble. Owing to a bad batch these tubes caused the downfall of the Indian competitors in the race. Noel Drury's engine seized in Glen Helen, probably through ball-bearing trouble. Pollard, the Quadrant rider, lost the cover of his magneto contact breaker, with the result that the latter would not stay in position. Norton broke an inlet valve rocker; and Stevens, the Dot rider, was another who had to withdraw. As H. A. Collier passed on his second round he was heartily cheered, and hearing or perceiving the acclamation he waved his hand in response. W. H. Bashall wobbled alarmingly as he entered the St. John's straight, and as he came into sight his goggles were seen to have fallen over his face. After repairing his tyre Lee Evans got away again amid cheers. The second lap positions were: Growing times.

1. H. H. Bowen (5 h.p. Bat) ... ... 36m. 39s.
2. B. V. Jones (5 h.p. Premier) ... ... 37m. 10s.
3. C. R. Collier (5 h.p. Matchless) ... 37m. 11s.
4. H. Reed (5 h.p. Dot) ... ... 37m. 23s.
5. F. W. Dayrell (5 h.p. Bat) ... ... 37m. 51s.
6. H. A. Collier (5 h.p. Matchless) ... 38m. 9s.

It will be seen that Bowen had assumed the lead, Jones had taken second place, and C. R. Collier third. Reed had kept his position, Dayrell had gone up a place, Collier had taken up sixth position, and Bashall had dropped behind.

In the third lap Bowen made the fastest lap of the day—17m. 51s., equal to 53.11 m.p.h.—but he charged the wall at Ballacraine Corner, and later retired with a broken frame on Creg Willey's Hill. In this round Witham stopped at St. John's, and Reed, who had broken his exhaust valve lifter, had to use his switch to slow down at the corners. On failing to restart on one occasion, his belt jammed, broke his pulley, and caused his withdrawal. Fenn was put out of the running with a broken connecting rod. E. F. Baxter retired, and Pimm withdrew through tyre troubles. Third lap positions:

1. H. H. Bowen (5 h.p. Bat) ... ... 54m. 30s.
2. C. R. Collier (5 h.p. Matchless) ... 55m. 35s.
3. B. V. Jones (5 h.p. Premier)... ... 55m. 51s.
4. W. H. Bashall (5 h.p. Bat) ... ... 56m. 30s.
5. H. A. Collier (5 h.p. Matchless) ... 57m. 1s.
6. F. W. Dayrell (5 h.p. Bat) ... ... 58m. 26s.

It was clear that C. R. Collier, the favourite, really meant business, and had crept up to second place. Jones dropped back one place, and so had Dayrell, while H. A. Collier and Bashall had gained ground.

In the fourth lap there was plenty of excitement. W. H. Bashall stopped at the depot at St. John's to fill up with petrol, and owing to the absurd regulation that competitors had to fill up their own tanks his hand shook, and the petrol was spilt over the hot engine. Instantly machine and rider were a mass of flames. For a few moments matters looked most serious, but Bashall was wrapped in coats, and

The Manx farmer, his pony, and the crowd. See page 506.

Boy scouts assist in keeping the route clear. They were posted all along the Glon Helen road in sight of each other.

save for a few burns was unhurt. The blazing machine lay on the ground, and the burning coat was in the road. People rushed forward, but, fortunately, the marshals kept the course clear, only just in time, as Marshall dashed through the flames, on his fourth round. McNab stopped at the depot for replenishments. Near Knocksharry, Gibson broke an exhaust valve, bent the new valve, and could not get it to work again. He had previously dropped his silencer. Lang on the Tee Bee withdrew. Moorhouse, another Indian unfortunate, had tube troubles, and Witham, who was travelling very fast, passed the starting point with a broken mudguard, and later retired. Fourth lap positions:

1. H. H. Bowen (5 h.p. Bat) ... 1h. 12m. 23s.
2. C. R. Collier (5 h.p. Matchless) ... 1h. 14m. 15s.
3. B. V. Jones (5 h.p. Premier) ... 1h. 15m. 53s.
4. W. H. Bashall (5 h.p. Bat) ... 1h. 15m. 57s.
5. J. Marshall (3½ h.p. Triumph) ... 1h. 18m. 43s.
6. A. Oberländer (5 h.p. N.S.U.) ... 1h. 19m. 9s.

It will be noted that the bad luck of Bowen and Bashall, the two unfortunate Bat riders, effaces them from future lists; hard indeed, considering their high positions. Bowen's ultimate withdrawal was in the fourth lap. Collier kept his second place, while Marshall and Oberländer had worked their way up. At the end of the fifth lap, Crundall fell near Kirk Michael, broke his petrol union, set his carburetter on fire, spoilt the float, turned his broken petrol pipe into the float chamber, and tried to continue, but all to no avail. Wood (N.S.U.) fell at St. John's and withdrew. Jones, who was always in the first three, retired through engine trouble.

The International Motor Cycle Tourist Trophy Race.—

Half Distance.

Fifth lap positions:

1.	C. R. Collier (5 h.p. Matchless) ...	1h. 33m. 24s.
2.	H. A. Collier (5 h.p. Matchless) ...	1h. 35m. 34s.
3.	A. Oberländer (5 h.p. N.S.U.) ...	1h. 38m. 43s.
4.	W. Creyton (3½ h.p. Triumph) ...	1h. 38m. 48s.
5.	W. F. Newsome (3½ h.p. Triumph)	1h. 39m. 19s.
6.	F. Philipp (5 h.p. Scott)	1h. 39m. 46s
7.	J. R. Alexander (5 h.p. Indian) ...	1h. 40m. 7s.
8.	J. Scriven (4 h.p. Rex)	1h. 41m. 30s.
9.	J. W. Adamson (3½ h.p. Triumph)	1h. 41m. 30s.
10.	H. Lister Cooper (3½ h.p. Triumph)	1h. 44m. 5s.
11.	C. E. Murphy (3½ h.p. Triumph)	1h. 44m. 57s.
12.	J. Marshall (3½ h.p. Triumph) ...	1h. 46m. 16s.

It will be seen by the above list of the first dozen that C. R. Collier assumes the first place and his brother leaps forward to second, after losing time through changing a plug. Oberländer comes third, and Marshall, who suffered a burst tyre, drops back to twelfth. It also shows how the other Triumph riders were proving their worth (especially Creyton, who jumped from eighth to fourth position), and how Philipp's Scott had come up into sixth place. In the sixth round Frank Applebee retired with a broken tappet rod, Crundall had finally to withdraw for the reasons already stated, and Mackay withdrew through tyre troubles at Kirk Michael depôt. Lord, another Rex rider, fell and broke his petrol pipe near St. Germans.

A remarkable snapshot during the race. F. C. Wood's N.S.U. clear of the ground on Ballig Bridge. The rider has also been jolted off the saddle.

Scene on the course in Glen Helen. W. Creyton leading.

Sixth lap positions:

1.	C. R. Collier (5 h.p. Matchless)...	1h. 51m. 45s.
2.	H. A. Collier (5 h.p. Matchless)...	1h. 54m. 33s.
3.	W. Creyton (3½ h.p. Triumph) ...	1h. 58m. 2s.
4.	J. W. Adamson (3½ h.p. Triumph)	2h. 1m. 11s.
5.	J. Scriven (4 h.p. Rex)	2h. 1m. 21s.
6.	H. L. Cooper (3½ h.p. Triumph)...	2h. 4m. 32s.

Here it will be seen that the brothers Collier keep their positions, Oberländer loses his place through his belt coming off and smashing his stand clip, Philipp loses sixth place through having to stop for petrol, Creyton assumes third position, and the first three never alter their order to the end. Adamson, Scriven, and Cooper move up in the scale. In the seventh round Houlding fell and retired through his saddle breaking at Ballacraine Corner. Oberländer gave up at Kirk Michael through a broken exhaust valve, and McNab was put out of the running through his cylinder head blowing off. Seventh lap positions:

1.	C. R. Collier (5 h.p. Matchless)...	2h. 10m. 18s.
2.	H. A. Collier (5 h.p. Matchless)...	2h. 13m. 55s.
3.	W. Creyton (3½ h.p. Triumph) ...	2h. 19m. 11s.
4.	J. Scriven (4 h.p. Rex)	2h. 21m. 33s.
5.	J. W. Adamson (3½ h.p. Triumph)	2h. 21m. 33s.
6.	F. Philipp (5 h.p. Scott)	2h. 21m. 35s.

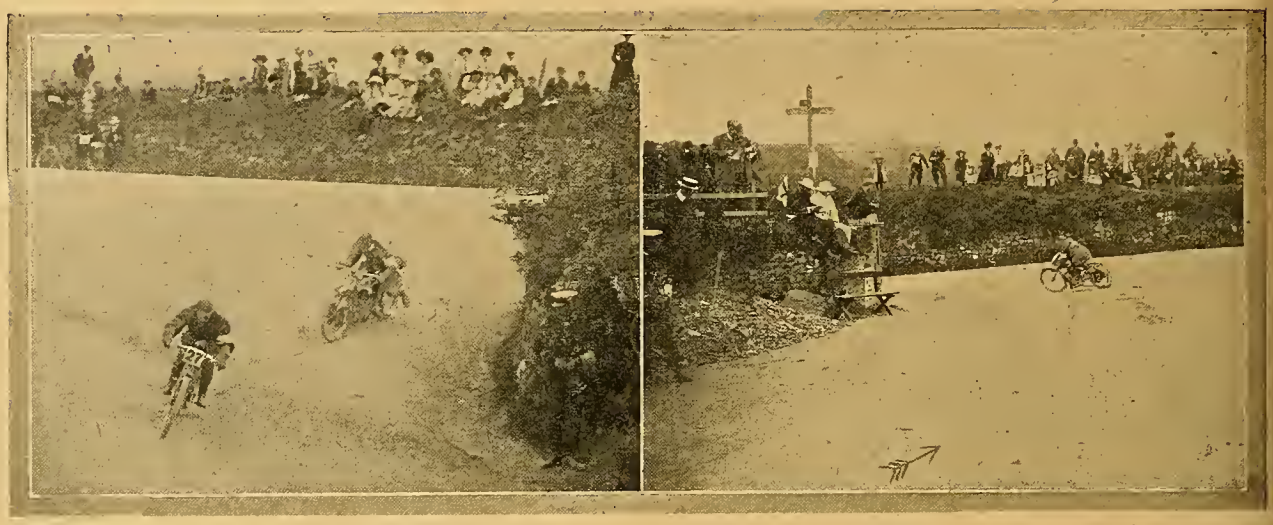
The first three now inseparable keep their places, C. R. Collier making fastest time in this lap, but Scriven steals a march on Adamson, and Philipp again appears on the list. Adamson had three stops during the race—two for petrol and one for oil—at least one of which he found afterwards was unnecessary. News also came to hand that Myers had suffered two punctures as well as plug trouble. Marshall was the fastest of the single-cylinders in this lap, doing his utmost to make up time lost in repairing a burst tyre in the fifth lap. Eighth lap positions:

1.	C. R. Collier (5 h.p. Matchless)...	2h. 28m. 49s.
2.	H. A. Collier (5 h.p. Matchless)...	2h. 34m. 1s.
3.	W. Creyton (3½ h.p. Triumph) ...	2h. 38m. 42s.
4.	J. W. Adamson (3½ h.p. Triumph)	2h. 41m. 19s.
5.	F. Philipp (5 h.p. Scott)	2h. 42m. 9s.
6.	J. Scriven (4 h.p. Rex)	2h. 43m. 28s.

Adamson, it will be noticed, again assumes fourth place, while Philipp goes up one in the list. In the ninth round Barnes (3½ h.p. Zenith) retired at the top of Creg Willey's hill through tyre and valve troubles, and Dayrell's rear cylinder head blew off. Myers again suffered plug trouble, and, having used up his spares, had perforce to run on one cylinder for three miles until he came on Godfrey, who was a friend in need, but further delay ensued in removing the faulty plug.

H. H. Bowen (5 Bat-J.A.P.), who, until a fall at Ballacraine, was leading. He continued for a short distance, but afterwards his frame gave way. Hard luck indeed!

The International Motor Cycle Tourist Trophy Race.—



Competitors negotiating the acute bend at Kirk Michael, which almost resembles a >. It is rendered more difficult by the fact that it is on a falling gradient. H. V. Colver (Matchless) is seen in the right hand illustration and A. H. Alexander (3½ Rex) and J. R. Alexander (5 Indian) in the other.

Ninth lap positions :

1.	C. R. Collier (5 h.p. Matchless-	2h.	48m. 23s.
2.	H. A. Collier (5 h.p. Matchless-	2h.	53m. 26s.
3.	W. Creyton (3½ h.p. Triumph) ...	2h.	58m. 13s.
4.	J. W. Adamson (3½ h.p. Triumph)	3h.	1m. 53s.
5.	J. Scriven (4 h.p. Rex)	3h.	3m. 34s.
6.	H. L. Cooper (3½ h.p. Triumph)...	3h.	4m. 53s.

About twenty-five minutes past one, C. R. Collier romped in a winner, with his brother second, and Creyton (the first single-cylinder rider) third. It was seen from the last five laps that his win was practically certain, and as the time of the finish approached Mr. Schulte, the sportsmanlike director of the Triumph Co., got ready a bottle of champagne and two glasses for the two brothers Collier. The result of the race was most popular, and the position in which Creyton finished highly pleased the islanders. Creyton is a Manxman, who was formerly ostler in an hotel, and being bitten by the motor fever he took to motor cycling, with what result may be clearly seen. Collier's average speed was 50.7 miles an hour, against 49.002 by his brother last year. C. R. Collier's fastest lap was 18m. 17s., as against 18m. 9s. by his brother in last year's race. The riding of the Matchless team was quite remarkable. Finishing first, second, and tenth, they rode consistently throughout. C. R. and H. A. Collier were said to be the most cautious at all the dangerous places, and yet their machines were reliable enough and fast enough to win. The arrangements were excellently carried out—even better than before, thanks to the presence of a strong man behind the organisation. Every precaution was taken against accident, and no accident worth mentioning occurred, though the lessons learned from the previous sad mishaps were undoubtedly taken to heart. Only in one respect was there a complaint, and that was against the working of the scoring board. Mr. Baines did his best, but his task was far beyond the powers of one man, so great was the size of the board.

At the meeting of competitors, it will be remembered, Mr. Nisbet urged those taking part in the race to show consideration to their rivals, and not pass at the corners and

Ballacraine Corner, a right-angled turn, where a large crowd congregated. The banking to assist the riders is shown in the right-hand illustration.

Lap Scoring Board, showing Results at a Glance.

Rider and Machine.	Lap 1.	Lap 2.	Lap 3.	Lap 4.	Lap 5.	Lap 6.	Lap 7.	Lap 8.	Lap 9.	Lap 10.	Total time
	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.
1. C. R. Collier, 5 Matchless (14)	18 54	18 17	18 24	18 40	19 9	18 21	18 33	18 31	19 34	19 1	3 7 24
2. H. A. Collier, 5 Matchless (1)	19 12	18 57	18 52	19 34	18 59	18 59	19 22	20 6	19 25	19 19	3 12 45
3. W. Creyton, 3½ Triumph (9)	19 33	19 39	19 51	20 29	19 16	19 14	21 9	19 31	19 31	19 45	3 17 58
4. J. W. Adamson, 3½ Triumph (37)	20 15	20 3	20 3	21 15	19 54	19 41	20 22	19 46	20 34	19 34	3 21 46
5. J. Scriven, 4 Rex (36)	20 18	20 6	19 50	19 45	21 7	20 15	20 12	21 55	20 6	20 1	3 23 35
6. J. Marshall, 3½ Triumph (7)	19 34	19 30	19 27	20 12	27 33	19 34	19 24	20 21	19 43	19 30	3 24 47
7. H. L. Cooper, 3½ Triumph (34)	20 23	20 39	20 33	21 29	21 1	20 27	20 7	20 9	20 5	20 31	3 25 24
8. W. F. Newsome, 3½ Triumph (8)	19 54	19 38	19 50	20 29	19 28	25 33	21 4	20 2	20 32	20 5	3 26 35
9. F. Philipp, 5 Scott (31)	20 19	19 58	19 45	19 46	19 58	21 43	20 6	20 34	29 24	20 14	3 31 47
10. H. V. Colver, 5 Matchless (12)	23 25	18 47	23 31	22 23	21 59	19 15	19 25	30 10	19 10	18 45	3 36 40
11. C. E. Murphy, 3½ Triumph (39)	20 52	20 52	20 41	21 29	21 3	21 4	23 5	22 22	22 29	22 58	3 37 15
12. W. Heaton, 5 N.S.U. (75)	21 5	20 34	20 43	26 17	21 3	23 37	21 45	21 54	21 47	22 1	3 37 41
13. Howard Smith, 3½ Triumph (43)	21 50	22 38	21 47	22 31	21 29	22 2	21 33	22 22	22 55	21 8	3 40 15
14. J. R. Alexander, 5 Indian (27)	20 0	20 10	20 10	19 43	20 4	28 45	22 22	27 0	23 25	21 10	3 42 49
15. W. G. McMinnies, 3½ Triumph (62)	22 20	22 25	22 17	23 6	22 12	21 37	25 26	22 7	21 59	21 17	3 45 16
16. H. Rem Fowler, 4 Rex (35)	21 18	21 38	21 15	21 50	27 54	22 18	22 31	22 9	22 40	22 15	3 45 48
17. J. Slaughter, 3½ Ariel (60)	20 4	20 34	23 23	21 35	24 34	20 36	22 40	24 6	28 0	22 28	3 48 0
18. D. C. Bolton, 4 Rex (40)	22 5	22 32	22 33	22 30	22 4	26 9	22 19	25 48	22 42	23 2	3 51 45
19. J. R. Woodward, 4 Rex (59)	24 0	26 0	24 9	23 4	24 49	25 33	23 30	26 40	24 53	23 4	4 5 51
20. J. Baxter, 4 Rex (47)	20 13	20 47	32 41	21 39	21 19	24 30	21 14	21 47	41 44	21 55	4 7 49
21. G. Lee Evans, 5 Indian (3)	26 50	43 54	20 20	24 46	22 35	21 11	21 7	21 2	19 52	27 39	4 9 16
22. A. H. Alexander, 3½ Rex (17)	21 6	21 1	21 39	21 42	23 30	22 58	24 43	27 49	35 0	30 57	4 10 15
23. W. E. Grange, 3½ Rex (49)	22 57	27 0	23 1	23 29	30 26	27 0	23 24	25 9	24 31	23 46	4 10 37
24. E. S. Myers, 5 Scott (20)	23 56	23 5	20 47	22 12	34 57	22 3	26 23	23 51	26 13	33 23	4 16 50
25. D. M. Brown, 3½ Humber (82)	22 54	23 49	23 40	23 27	26 11	23 51	23 14	24 48	35 23	30 13	4 17 36
26. S. C. Perryman, 5 Blumfield (66)	25 47	21 6	21 15	47 57	23 1	25 28	21 54	22 5	22 19	40 16	4 31 8
27. A. J. Sproston, 4 Rex (19)	22 20	24 39	50 15	24 27	28 36	25 3	26 3	27 24	22 40	23 39	4 35 6
28. P. Weatherilt, 3½ Zenith Gradua (58)	28 16	23 51	23 43	23 37	24 36	22 37	22 39	23 16	32 47	56 31	4 41 53
29. F. W. Chase, 3½ Centaur (65)	25 11	25 14	25 15	27 11	48 45	28 25	26 4	25 43	25 51	27 40	4 45 19
F. W. Barnes, 3½ Zenith Gradua (57)	22 50	22 59	22 51	38 20	23 52	22 4	58 15	22 45	36 11	Punctures and valve trouble.	
F. W. Dayrell, 5 Bat (63)	18 58	18 53	20 35	21 13	51 18	36 36	19 22	19 16	36 23	Head of rear cylinder blew off.	
J. F. Sirett, 3½ N.S.U. (74)	25 19	25 51	25 39	25 33	26 2	28 26	28 49	34 32	29 34	Mistook signal and stopp'd too soon	
F. A. McNab, 3½ Trump (26)	21 38	23 53	22 13	29 49	35 29	22 25	29 53	24 37	Cylinder head blew off.		
F. Turvey, jun., 3½ Humber (68)	22 58	35 56	28 21	22 47	1 22 23	34 20	26 17	32 4	Broke connecting rod.		
J. H. R. Loxham, 5 Moveo (42)	25 45	24 14	42 6	23 56	30 41	26 1	23 53	Broke saddle at Ballacraine.			
N. F. Holder, 5 Blumfield (67)	21 4	1 11 17	26 28	21 42	30 51	21 8	22 0	Retired through overheating.			
A. Oberländer, 5 N.S.U. (76)	20 3	19 52	19 34	19 50	19 24	35 34	19 11	Broke exhaust valve.			
J. F. Crundall, 3½ Humber (44)	21 31	23 10	23 16	22 9	38 34	1 9 49	Broke petrol pipe, carburetter on fire.				
F. Mackay, 4 Rex (48)	21 34	21 14	41 37	23 56	22 29	42 12	Burst both tyres.				
R. Lord, 3½ Rex (78)	23 39	22 10	25 2	24 16	28 54	1 6 59	Retired through fall.				
F. A. Applebee, 4 Rex (18)	23 1	31 33	27 2	26 53	52 6	Broke tappet rod top of Creg Willey's Hill.					
E. F. Baxter, 4 Rex (72)	25 21	31 3	30 21	28 17	2 18 25	Ran into wall at Ballacraine, bent forks so as to drive front wheel up to crank case, straightened them and continued, but retired next lap.					
F. C. Wood, 3½ N.S.U. (73)	22 58	21 25	24 42	23 40	37 30	Fell at Kirk Michael.					
F. W. Applebee, sen., 3½ Centaur (79)	27 15	23 43	24 40	37 26	1 36 14	Broke petrol pipe, tried to repair it with a cork and by binding, but unsuccessful.					
W. H. Bashall, 5 Bat (21)	18 15	20 17	17 58	19 27	Machine caught fire at St. John's and burnt up.						
H. H. Bowen, 5 Bat (23)	18 28	18 11	17 51	17 53	Fell at Creg Willey's Hill, retired with broken frame.						
S. A. M. Witham, 5 Bat (25)	21 50	21 54	24 33	30 10	Retired; tyre troubles, broke belt on several occasions and had no spare.						
A. J. Moorhouse, 5 Indian (32)	1 47 1	18 57	18 46	18 48	Inner tube trouble.						
J. Gibson, 3½ Trump (52)	20 49	24 55	1 35 15	36 27	Bent exhaust valve, which could not be extracted.						
B. V. Jones, 5 Premier (56)	18 33	18 37	18 41	20 2	Broke pulley and engineshaft.						
A. G. Tenn, 3½ Ariel (61)	20 51	24 22	23 47	42 3	Broke connecting rod.						
J. Lang, 5 Tee-Bee (84)	31 16	19 44	19 30	30 20	Collided with collie and damaged foot.						
D. R. Clarke, 5 Indian (4)	20 13	19 39	19 23	Fell near Kirk Michael, machine caught fire.							
H. Reed, 5 Dot (28)	18 44	18 39	38 36	Belt jammed pulley, pulley broken.							
C. B. Franklin, 5 Indian (10)	57 16	48 41	Inner tube trouble.								
Noel E. Drury, 5 Chater-Lea (11)	21 0	50 51	Seized engine.								
J. L. Norton, 3½ Norton (24)	22 36	1 53 23	Broke inlet cam rocker.								
E. J. Stevens, 3½ Dot (29)	56 7	1 9 4	Broke valve which wedged in exhaust pocket.								
R. Pimm, 3½ A.S.I. (70)	28 36	35 4	Retired through tyre troubles.								
W. O. Bentley, 5 Indian (6)	19 27	Burst back tyre near top of Creg Willey's Hill.									
O. C. Godfrey, 3½ Rex (16)	21 2	Broke piston.									
D. B. Rea, 3½ Moveo (53)	47 19	Broke belt pulley.									
R. Ellis, 3½ Rex (80)	22 48	Engine trouble.									
P. Butler, 5 Dot (30)	Retired before completing first round in Peel.										
B. Yates, 3½ Humber (46)	Retired through engine troubles at Kirk Michael.										

The International Motor Cycle Tourist Trophy Race.—

dangerous bends. So well was this sportsmanlike idea carried out that many of the marshals who were to make reports of what happened, especially as regards examples of unsportsmanlike behaviour, had no comments to make. In motor cycling, at any rate, are the sporting traditions of Britons brilliantly upheld.

At the conclusion of the race the first twelve machines were pushed into the enclosure (the crowd cheering as each went by), and were there examined by the judges, who verified the measurements, and found these, we are glad to say, correct.

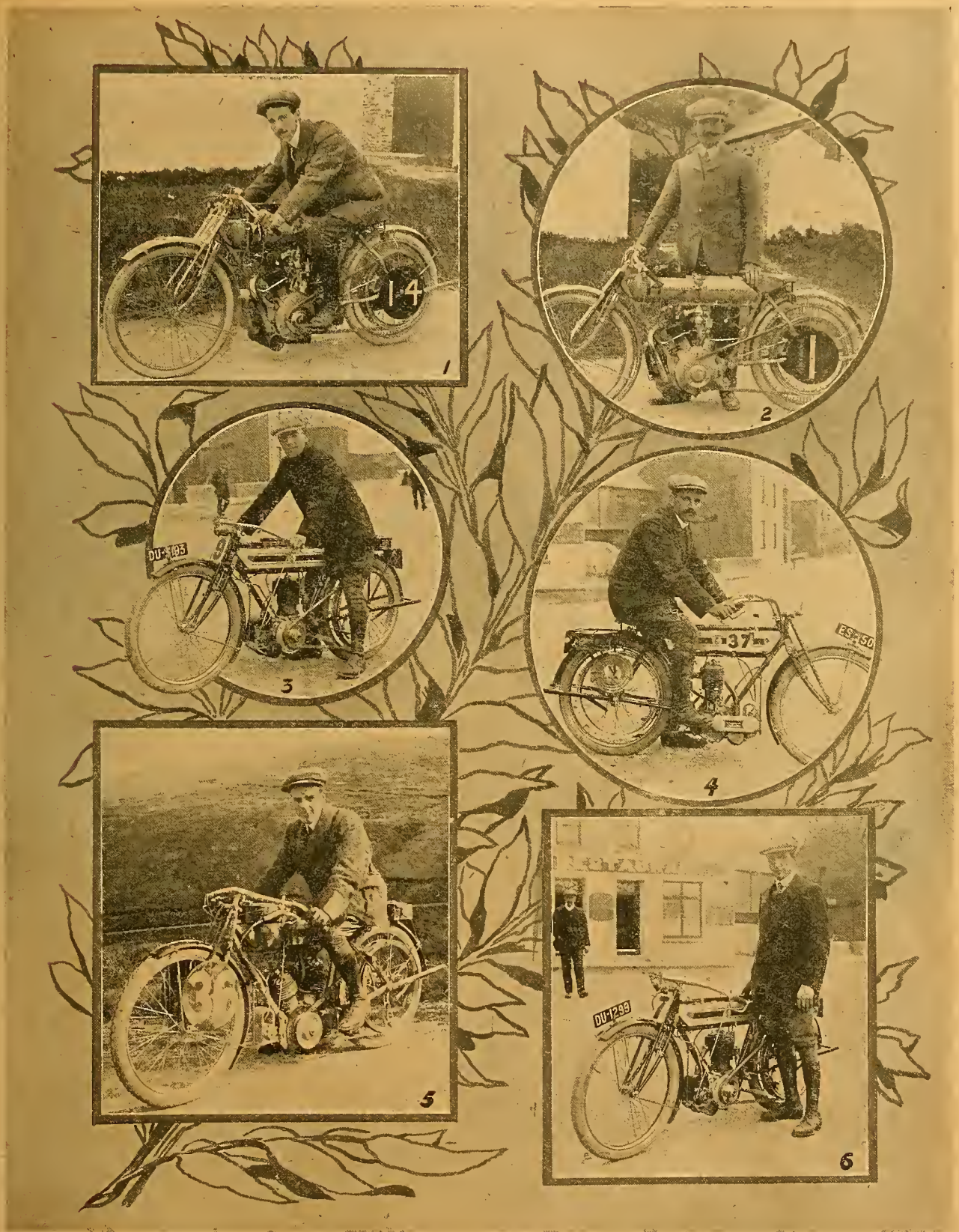
C. R. Collier finished about 1.25 p.m., and after this the interest of the crowd began to flag, and many became restless. A number, however, had to finish, and among these may be mentioned the hard case of Sirrett (N.S.U.), who was close behind another competitor who had just completed his tenth lap. Sirrett mistook the signal, and thus was prevented from finishing the course, though he had plenty of time in which to do so.

On the way to Glen Helen. One of the prettiest spots on the course. Ballig Bridge, in the foreground, proved a stumbling block to a great many competitors.

Impressions at Ballacraine and Ballig Bridge.

After my experiences of the practice I came to the conclusion that the place *par excellence* to make my headquarters was St. John's, for here, not only could the start and the finish be seen, but also access was easy to Ballacraine Corner, that cemetery of hope; Ballig Bridge, where the machines leap into the air; and the unnamed bridge which squats diagonally on the course between St. John's and Peel. By careful dodging and the occasional use of a motor bicycle, I managed to keep my actual absences from the course down to a very few minutes. The first place I went to was Ballig Bridge, which from the scenic point of view is probably the most charming spot on the course; here a surprisingly small number of people had collected, and were dotted amongst the golden gorse on the hillside at various vantage points. Scarcely a better position could have been chosen for watching sensational riding, and very sensational indeed it was. The first man to fly by, taking the corner in magnificent style, was Bennett on an Indian, who, starting level with H. A. Collier, had managed to snatch thus early a lead of between two and three hundred yards. Generally speaking, the order over the bridge was the same as at starting until No. 14 (C. R. Collier) pulled up just before the bridge and spent several precious moments in making some adjustment, apparently to his carburetter. Three hundred yards further on he had stopped again. The first incident to send the spectators' hearts into their months came when Bentley, on an Indian, leapt over the switchback bridge and twisted his front wheel in mid-air. His subsequent course for the next fifty yards was meteoric and startling, as his track was not unlike the section of a corkscrew along its major axis. Scarcely had the spectators got their breath back when Newsome, on a Triumph, taking the turn a shade too wide, had some little difficulty in preventing his machine unceremoniously entering a cottage by the front door. Three or four minutes later Alexander and Applebee, both on twin Rexes and hard on each other's heels, did much the same thing, and only saved themselves by superlative skill. It was noticeable that neither of them switched off, but wrenched themselves back on to the course and disappeared round the corner towards Glen Helen as if they had only been carrying out their usual itinerary. Moorhouse spent a long time at the bridge, a victim of the tyre trouble which

THE VICTORIOUS COMPETITORS IN THE TOURIST TROPHY RACE.



(1). C. R. Collier, winner of the Marquis de Mouzilly St. Mars trophy. Machine 5 h.p. Matchless-J.A.P.

(2.) Last year's winner, H. A. Collier (5 h.p. Matchless-J.A.P.), the second to finish, 5½ minutes behind his brother.

(3.) W. Creyton (3½ h.p. Triumph) the first single cylinder rider to complete the course.

(4.) J. W. Adamson (3½ h.p. Triumph) the first private owner past the finishing post.

(5.) Jack Scriven (4 h.p. twin Rex) a private owner fifth in order of speed.

(6.) J. Marshall (3½ h.p. Triumph), winner in 1908 and sixth to finish this year.

The International Motor Cycle Tourist Trophy Race.—

dogged all his *confrères*. The manner in which Philipp and Myers on their Scotts negotiated the bridge was an eye-opener to everyone, for whereas if *all* the machines did not actually come over with *both* wheels off the ground, all but the Scotts had at least the front wheel in the air.

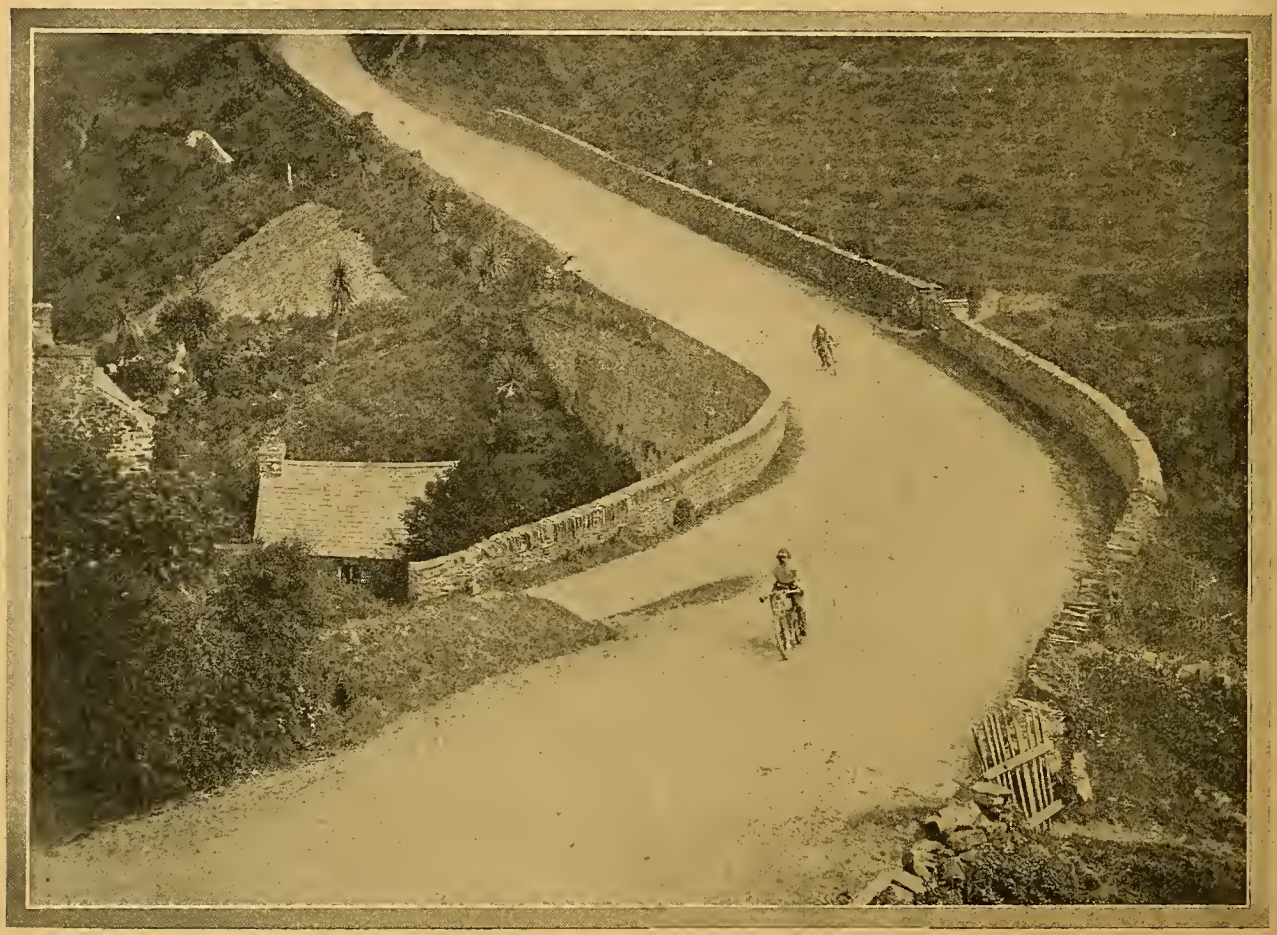
Quite the fastest over the bridge in the second lap was Jones, on a twin Premier, who in one lap had passed no fewer than thirty-two competitors, and was going in magnificent style.

A steeplechase over hedges and ditches quickly took me by a short cut of my own discovery to St. John's, where, of course, interest in the race was centred, although from the spectacular point of view the endless succession of machines whizzing by was apt to grow a trifle monotonous, especially if one were not doing a little private lap scoring, for the official scoring board was never within less than twenty minutes of being up-to-date.

Perhaps the most comfortable place of all to watch the progress of the race was from a steep hill overlooking the bridge between St. John's and Peel, where one might lie and bask in the sun and see the machines first as the nuclei of puffs of dust in the distance; one had, too, practically a bird's-eye view of the bridge. Contrary to my expectations there were no incidents here of the sensational type, which speaks in high terms of the rider's skill, for there is no doubt that this bridge is very much harder to tackle than that at Ballig, for whereas the latter can be clearly seen from the hill down which one approaches it, the former is "blind," and it was therefore necessary to have a flag-wagger here.

I had left my machine at St. John's, and thanks to it I lost no time getting to Ballacraine Corner, where I was just in time to see Bowen bring off quite the most hair-raising waltz that this year's race and practice have yet brought forth. This was particularly unfortunate, as he had been doing some most remarkable times, and was undoubtedly prime favourite for the race if one may judge from the amount of money which was placed upon his chance. Ten minutes before he came to grief an amateur bookie did brisk business with an offer of "fours" against Bowen, business which proved highly profitable, with remarkably quick returns. Lust for speed and the consciousness that he was rapidly overhauling everybody else evidently proved too much for the famous Bat rider, for he rode at the corner at a pace which was much too high. The moment he realised his mistake he switched off and crammed on his brakes. By this time he was already close against the wall, so that he was forced to make a sharp turn, with the result that he cut a complicated figure involving at least one and a half complete turns and fell backwards into the wall with the machine on the top of him. A great burst of cheering arose when Bowen pluckily got up, picked his machine up, and started punching and thumping the handle-bars back into position. In less than a couple of minutes he was off again going apparently as well as ever, but alas, fated to come to grief with a broken frame a short distance further on. Alexander, on his Indian, directly afterwards took the wooden banking in the most advanced manner, that is to say he went right up to the very top and came down again with a thump that took a lot of his speed off.

After this I spurted back to St. John's, rough and tumbled across to Ballig, where I saw a fine race between the Collier Bros. and Creyton, and then back to St. John's in time to act as a policeman in keeping the crowd off the course and add my voice to the cheers which greeted C. R. Collier when he purred past the winning post.



W. E Grange (3½ Rex) and D. R. Clarke (5 h.p. Indian) speeding along the coast road to Peel.

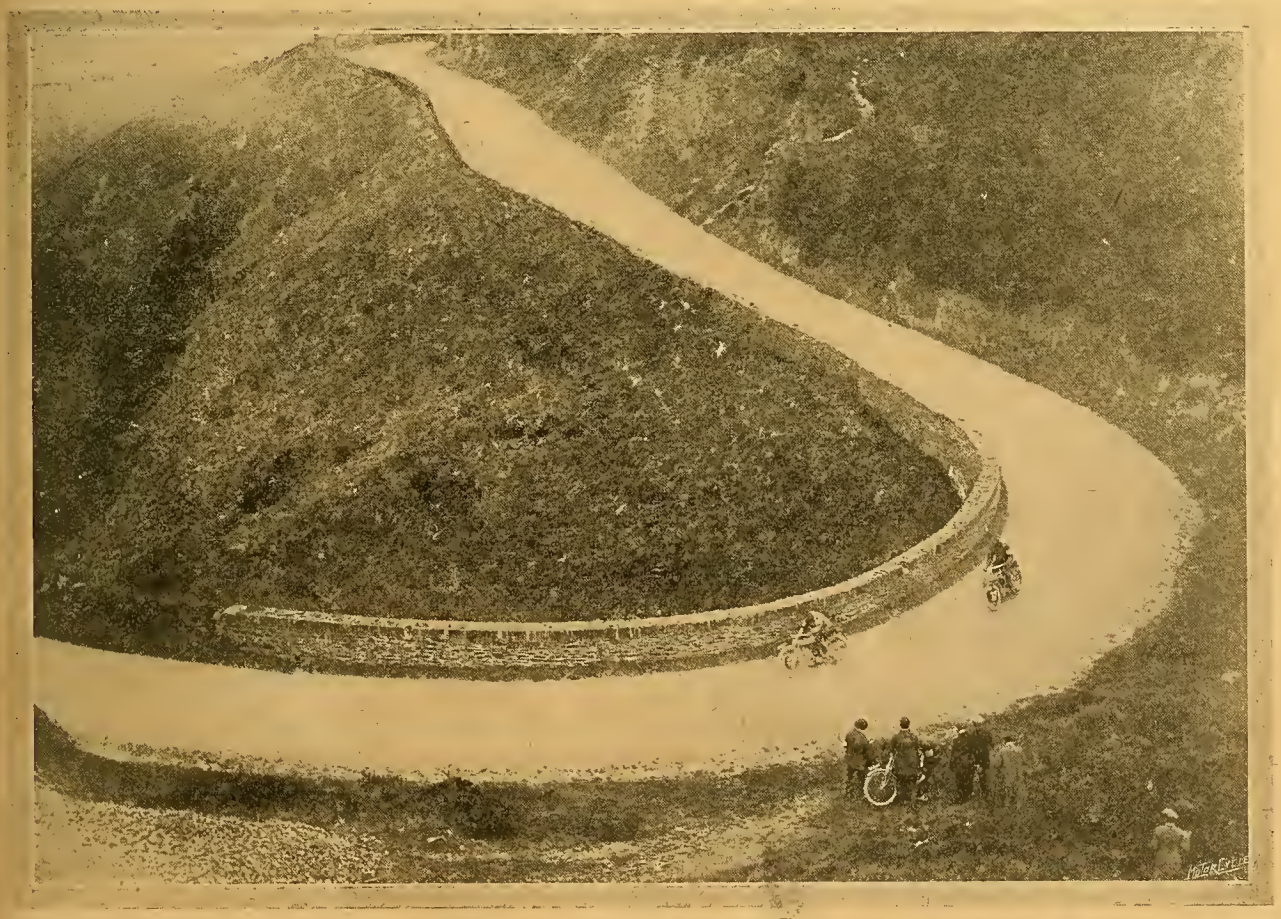
The International Motor Cycle Tourist Trophy Race.—

Observations at Kirk Michael Replenishment Depot.

The north-western corner of the triangle is an execrable V turn on a falling grade, and so dangerous that no rider dare play tricks with it; everybody switches off a hundred yards away, and rounds it at a crawl. The many heavy tosses sustained here in previous years are to be ascribed to brake failures rather than over lurid corner work, and this year the road on to Ramsey was kept clear and open for any rider whose brakes had become weakened. Quite a number of men exhausted surplus impetus by thus running off the course, notably on two occasions, when clumps of four and six riders stormed up to the V with only a few feet between them. The number of spectators at the corner was considerably in excess of previous years, and even the women and children managed to keep in touch with the positions of the leading men—no easy matter, especially in the first few laps, when the thundering procession was practically continuous, but the slow pace round the V renders the numbers legible. Two hundred yards up the road towards Creg Willey summit was a green banner, denoting a replenishing depôt in charge of C. E. Rackham. Here were located supplies for the Matchless, Indians, Scotts, and some of the Rexes and Triumphs. Oscar Hedstrom and Wells soon had cause to look glum at the disappearance of some of their cracks, and ere long Bentley walked disconsolately in with a mangled sample of the special American inner tubes, which were responsible for the Indian *débâcle*. These tubes had been over vulcanised at the lapped joint, and ripped like blotting-paper in patches. Bentley's tube had split for ten inches when he was possibly touching 70 m.p.h. in the swoop down from Creg Willey summit, and he had the most strenuous half minute of his life in fighting the machine as it bucketed to and fro across the road. The first lap showed that W. H. Bashall meant business, and could he but keep on the road he would extend the Colliers. Lee Evans hunted Collier round the V only a yard astern, and Jack Marshall was hanging on to them like a terrier. The shuffling of positions corresponded in the main with those at other points of observation, and the special interest here lay rather in many duels for precedence round the bend, and in the varying dexterity with which the riders replenished their tanks at the depôt.

On the first lap Franklin pulled up and changed the tube in his back wheel, thus losing a lap. When restarting he jammed his coaster hub at the V. W. H. Bashall was second man round in the second lap, having done very fast time, while Jones on the twin Premier was also travelling superbly. On the third round 58 and 69 both came up too fast in close company, and had to shoot down the safety road. Creyton and Newsome were not a machine's length apart, having raced 38 miles side by side.

On the fourth lap, H. A. Collier stopped to fill with petrol, and was off again in 27s. His tank had a huge Davison filler, and his attendant slapped in spirit in record time from an ordinary two-gallon can, which had been provided with an air vent in the bottom by the simple process of banging a cold chisel through it. Bowen shot ahead just as Collier was starting away again. Marshall tore down the hill, just leading Clarke's Indian, which shot ahead as Jack stopped for petrol. The small screwed filler caps on the Triumph tanks wasted a lot of time by comparison with the Davison bungs. The Indians similarly wasted time in filling their oil tanks, but Wells had a good thing in half a dozen huge squirts. These were kept ready filled with lubricant from a bucket, a cork stopping up the nozzle. One and a half squirts would fill the tanks in five or six seconds. Creyton nearly sacrificed his chances after refilling in this lap. He was just starting



Rounding the Devil's Elbow. J. Marshall being "hotly" pressed by J. W. Adamson. Eric Myers is changing a plug by the roadside.

Our Artist's Impressions of the T.T. Race.

C E BENNETT & H A COLLIER LEAD OFF
INDIAN MATCHLESS
FACES IN THE CROWD
TAKING THE BALLACRAINE CORNER
BALLIC BRIDGE BOTH WHEELS OFF THE GROUND
SECRETARY OF HIGHWAYS COMMITTEE
THE SPEEDY BOWEN PLUCKILY REMOUNTS AT BALLACRAINE
THE UBIQUITOUS BOY SCOUT
SKETCHED IN ST JOHNS
THE POPULAR CLERK OF THE COURSE
EXPERTE CREDE
C.R COLLIER AT BALLACRAINE CORNER
AN IMPRESSION OF THE FINISH
A SKETCH IN THE BALL ROOM DOUGLAS
No 22 WHEN FILLING WITH PETROL FIRES
A RUN ON "THE MOTOR CYCLE" CROSSING TO DOUGLAS
DOUGLAS

The International Motor Cycle Tourist Trophy Race.—

off when his machine burst into flames, and he paused in dismay, but with a roar of "Get on!" from the attendants he leapt into the saddle, and the wind extinguished the flames within fifty yards. Franklin came down the hill at a truly frightful speed in this lap, but Sproston, whose luck is usually bad, had to stop for tyres and petrol. Several riders signalled as they passed the depot that they would stop on the next lap, and in each case an attendant was out waiting in the road with all supplies ready a quarter of an hour later. Charlie Collier stopped to replenish on his fifth lap, and H. A. shot past before his brother got away. Even the leading men asked anxiously where they stood, whenever they paused at the depot, and as the tale of laps grew longer many riders lost count of the distance they had done. The fastest men were all early starters, and were anxious lest one of the later starters should be circling round quite as fast seven or eight miles behind them, so true is it that "lookers on see most of the game."

By the sixth lap a twin-cylinder victory seemed a moral certainty, and now occurred the sensation of the day, six riders descending from the heights above so close together that a large blanket would have covered them. Luckily, four of them funked rounding the V in such close company, and they tailed out into a string ere the dangerous angle was attained.

On the seventh round, Oberländer, who had raced with remarkable consistency, parted with his chance. His belt pulled through and damaged the clip of his stand just as he applied his brakes for the V. In his anxiety he made an error of judgment, and tried to remove the stand instead of strapping it up. He broke the crossbar, and it took him a long while to secure the legs separately. By the time he had further fitted his spare belt, he had lost about a lap, and went on very disconsolately, reappearing two or three laps later in hopeless trouble with his exhaust valve. The poor fellow sat on a bench in the garden at the depot, the picture of disappointment. Mackay presently walked his machine down the hill, the joint of his second butt-ender having collapsed after repeated repairs. He reported a very narrow escape. He was chasing Bowen down Creg Willey at a furious speed, when the latter's frame broke. The Bat went one way, its rider the other, and Mackay shaved in between them by an inch or two.

On the eighth lap, Scriven made a very clever restart after a petrol stop. He had previously broken his valve lifter, but managed to push off his racer while half lying across the top tube to hold up a tappet on the far side. Considering that this must have hampered him, his position in the race was excellent.

On the ninth lap, "Pa" Applebee came in disconsolately exhibiting his petrol pipe, which had come clean out of the tank. MacMinnies hereabouts encountered his sole trouble, his exhaust valve jamming in the guide. He had ridden very consistently and steadily, though never fast. Just before the course was thrown open, Dayrell's back cylinder failed between the Devil's Elbow and Peel.

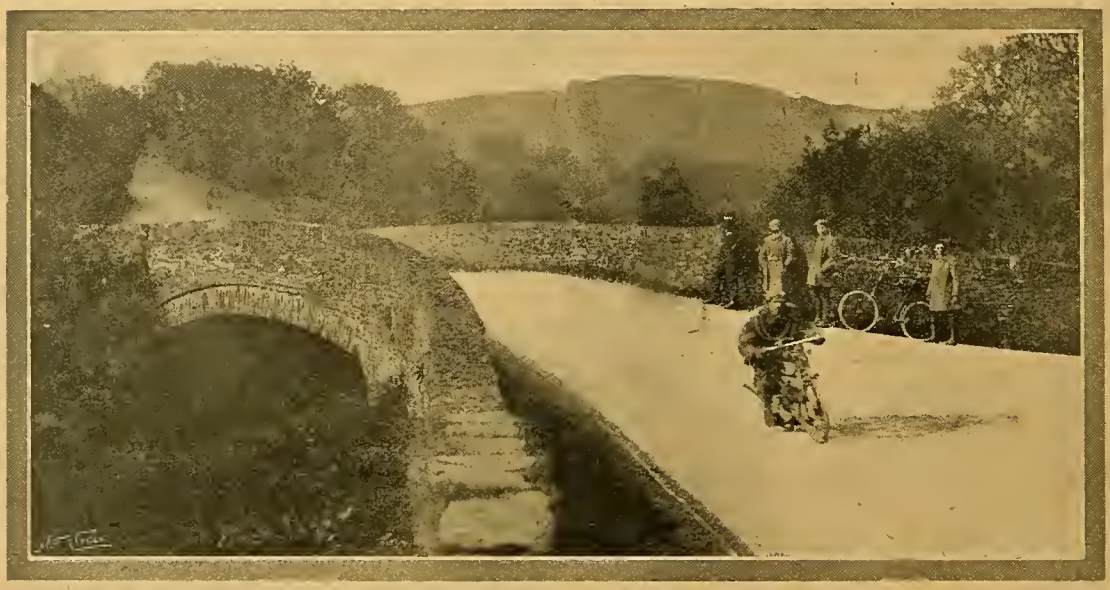
The Race as seen from Knocksharry.

After witnessing a dozen competitors start from St. John's, I mounted my motor bicycle and sped across the inside of the course by a short cut along a very lumpy and disused road to a point midway between Peel and the Devil's Elbow. Here I had a clear view of the course for more than a mile, and arrived just in time to see H. A. Collier come thundering past. Lee Evans followed a minute later, followed by Bentley, Clarke, and Marshall. The latter was starting well, for he overtook and passed Clarke on the stretch of road I surveyed. The dust was appalling; several times bunches of competitors were tearing along in a cloud, and so thick was the dust that at times it was difficult to discern the numbers. How the hindermost were able to steer at such tremendous speeds is a puzzler. It was clear that Bowen and Bashall were the fastest over the stretch of road near Knocksharry. The Colliers appeared to be taking matters easily the first round or two. It was a fine sight as over sixty competitors filed past at speeds varying from 50 to 70 m.p.h. Sometimes there would be a gap, then a constant stream, the hinder men fighting their hardest to gain the lead to avoid the dust. On the second lap H. A. Collier had retained his lead, but it was seen that the favourite, C. R., was making headway, as he had almost caught up his brother. Colver had suffered a stop, and he was making strenuous efforts to pick up time. Then followed almost in a heap, Marshall, Clarke, Bowen, Newsome, and Creyton. Bowen had crept up several places, and his corner work was extremely clever. Jones struck me as going particularly well. Newsome and Creyton again passed in line next round, only a machine's length separating them. Bashall and Reed were going great guns, and in a moment or two Godfrey, the two Alexanders, and Colver passed in a bunch, fighting out an extra race for the first position. Then a competitor was observed pushing his machine by the roadside. It proved to be J. T. Bashall, who was very disconsolate, for he said his Bat was running as well as it had ever done, when the outer pulley flange broke in pieces—the result of drilling too many holes on the belt line. The next incident was an exciting duel between F. Philipp and J. Lang. It was a very even race, and both were lost to view still side by side. The two-stroke Scott machines excited the keenest admiration, the beautifully healthy purr of the engines being a pleasant change from the crisp bark of the majority of the other machines. F. W. Applebee (Centaur) broke his belt on the first round—by the way, to improve the flexibility he had fitted his belt with twenty-four fasteners! Having refitted a belt of ordinary pattern he continued, but on the next lap sustained a fall, breaking his left footrest. Butler had apparently lost a lot of time, and passed with his engine running on one cylinder. Slaughter's Ariel showed a surprising turn of speed—for the rider is no lightweight. He was unfortunate with his belt, which demanded no fewer than six stops. On the third lap Bowen had worked into first place, and his Bat was perceptibly several miles per hour faster than any other on the course. The question was, would his pace last? H. A. Collier followed in a minute or two, apparently imperturbed by being passed by Bowen. C. R. Collier followed about a mile in the rear, his stand trailing on the ground as he passed. Fenn did not seem happy, but Dayrell passed going great guns. Perryman on the blue Blumfield was travelling exceptionally well, although his machine seemed to be too long in the wheelbase for racing purposes, and consequently rather unsteady on lumpy surfaces. Harry Bashall seemed to be improving in speed. Single com-

A stretch of road near Kirk Michael showing competitors in full flight.

The International Motor Cycle Tourist Trophy Race.—

petitors now sped past, until it was Woodward, Brown, and Lord's turn to fight out a little battle royal of their own. Brown had dispensed with goggles, so his plight, sandwiched in the bunch, may be imagined! The Bats were still further improving their positions, for Bowen was well ahead on the fourth round. Alexander's Indian was not travelling so fast on the fourth lap, and Colver's engine was misfiring. When the two Colliers passed leading in the fifth lap everyone was asking what had become of Bowen and Bashall—two of the most popular competitors. There was genuine sorrow when their fate was afterwards learned. For four laps Creyton and Newsome were inseparable twins, but then the Manxman found some more speed in his machine, and with increasing confidence and encouragement from his friends at all points of the course, he gradually forged ahead, riding superbly to the finish. J. Gibson broke a valve soon after passing the Devil's Elbow, and a spare he fitted had a bent stem and stuck in the guide. After replacing this he restarted and covered a fast lap, afterwards retiring. J. L. Norton was another of the unfortunates, for an inlet valve rocker broke, delaying him some time. He contrived to make his engine run up to 30 m.p.h. by fitting a weak spring to the inlet valve so that it would work automatically. As he could effect no further improvement in speed he gave up. A favourite with the Manxmen who were dotted here and there around the course was D. M. Brown, a Douglas rider of a Humber. As he appeared lap after lap with clocklike regularity he was cheered again and again. The Colliers in the second half seemed to be settling more to their work, and were negotiating corners faster and closer. C. R. Collier had gradually left his brother in the rear, although both led the vanguard. Their wonderfully consistent riding excited the keenest admiration of the crowd, and few had doubts but that they would finish successfully, knowing their prowess. Myers hereabouts suffered a puncture, although travelling splendidly. Witham completed several laps at a fast pace, but his rear mudguard was swaying about dangerously on the back tyre. Chase was delayed near the Elbow by a broken valve, and a little further on Drury's engine seized temporarily. Adamson, Murphy, McMinnies, and Cooper were travelling well, and looked sure finishers early on. They were not exceptionally fast, but were reeling off laps at a steady 48 m.p.h. As Moorhouse passed Scriven on one occasion, he called out urging his friend to success. It may be observed here that all the competitors proved most sportsmanlike. There was no attempting to keep others in the rear, and no dangerous scrapping on corners. Many of the competitors had dropped out by the eighth lap, making matters more pleasant for the survivors. For two or three laps the leaders were isolated, and had no dust to hamper them—a different state of affairs from the first hour. After the brothers Collier had passed on the tenth lap, the writer scurried back across country—just in time to see the winner finish. Several competitors who eventually finished were then passing St. John's on their ninth lap.



Another view of Ballig Bridge. About half a mile further along the course the ascent of Creg Willey's Hill commences. The road from Ballacraine may be seen in the background on the left.

Interview with the Winner.

After having tea at Peel and hearing Martin, Dayrell, Evans, and Bentley fight their battles over again, we set out for Douglas, and at St. John's were lucky enough to meet C. R. Collier walking back from the post office. Here was an opportunity not to be missed. Beckoning to the happy victor, whose face was wreathed in smiles of recognition and happiness, and who looked wonderfully fresh and fit after his splendid ride, we warmly congratulated him, and asked him for his views of the race.

"A very easy affair," he replied. "I had no trouble, and my machine carried me through in excellent form."

"Did you find the dust very trying?" we ventured, knowing that dust was one of the enemies the competitors feared most.

"No," he answered; "it worried me very little, as I saw very few competitors."

This is quite extraordinary, but it is nevertheless a fact that the leaders in these races see very few of the other men, despite the number on the course. We feared at first that the mist would hamper the men on the higher ground; but this Collier assured us was not the case.

"It has been an ideal day," he said. "Everything was in our favour, but the race has been harder each year."

"What did you think of the condition of the course?" we asked.

"It is certainly rougher than it was last year," he answered. "It is a pity so many official and other cars are allowed on it, as they have damaged it somewhat."

"Do you think," we suggested, "that any better course could be found?"

"No," he replied, "I am quite satisfied, and if all the corners were treated with Tarmac it would be ideal. It has already been improved a good deal, especially in Peel, but, provided the speed is not increased, I am quite satisfied."

Knowing that a few technical details would interest our readers, we then asked Collier how he liked his new short stroke engine.

"It runs a good deal faster," he replied, "but does not give quite the same power. Still, it has enough, as you can see, but as it has a high compression it knocked somewhat on the hills, but all the others did, didn't they?"

Not wishing to keep our victim longer from his well-earned rest, we renewed our congratulations, and wished him equal success next year. Thus ended a glorious day in the annals of motor cycling.

The International Motor Cycle Tourist Trophy Race.—

Of the four Tourist Trophy Races which have been held, C. R. Collier won the first and fourth, whilst his brother won the third, and in 1908, when Marshall won, C. R. Collier was second. The 1910 race will always be remembered for the fine weather which prevailed before and during the time when it was held. All will admit it was a glorious success, and the finest motor cycling road race which has ever been held. The public are inclined to look upon racing as useless, but it must be remembered that the T.T. is a reliability trial, inasmuch as the competing machines are within a very little of being perfect touring mounts. Now, while motor bicycles will run through a trial at a legal limit average for 1,000 miles, and seventy or eighty per cent. will finish, this is not the case if the machines are hurried, and occasionally motor cyclists do drive at over twenty miles per hour. Consequently the T.T. is of inestimable value, and by its means margins of safety which tend to make the modern machine more reliable are discovered. The necessity of these races is shown by the fact that out of seventy-two starters only twenty-nine completed the course, and though numerous failures are due to accidents, a glance through the tables which appear elsewhere in this issue proves that mechanical troubles are more prevalent than they should be. Again, the Manxmen and all other good sportsmen are keen to see another race in the island, which we trust will receive the support it deserves.

Presentation of the Trophy.

The presentation of the trophy was made at the Douglas Palace on Thursday evening in the presence of a huge crowd by Mr. C. T. W. Hughes Games, Chairman of the Manx Highway Board, who congratulated the A.C.U. on the organisation of the race.

Mr. C. R. Collier, in replying, acknowledged the courtesy and hospitality shown to the motor cyclists by the inhabitants of the island.

A special gold medal was presented by Mr. Cowell, of Douglas, to Mr. D. M. Brown (Humber), who is a Manx resident, and completed the course. By the way, Creyton, who rode the first single-cylinder, hails from Ramsey.

T.T. Notes.

In last week's issue we described the machines ridden by Groves, Fowler, Slaughter, Scale, and Honlding as being fitted with Bosch magnetos, but have since been informed that the above riders' machines, as used in the race, were fitted with Simms high-tension magnetos, made by the Simms Magneto Co., Welbeck Works, Kilburn, N.W.

The Motor Cycle T.T. telegrams posted up in the windows of the Matchless showrooms at Plumstead were read by thousands. An extraordinary scene was presented in the dinner hour, when hundreds, including many of the mechanics from the Government workshops close by, were amongst those waiting for the news. About 300 were present when Miss Collier, smiling and looking supremely happy, posted up the final wire. Then the waiting hundreds gave cheer after cheer. Someone suggested a cheer for Creyton, and this was taken up with enthusiasm.

Their success was the whole talk of the town that evening. It was not unexpected, however. Colliers are proverbially lucky, and everyone anticipated that one of the two Colliers or Colver would win.

It is worth noting that both H. A. and C. R. are teetotallers, and are practically non-smokers.

The Triumph Cycle Co., Ltd., Coventry, write: We hear from our Manchester depôt that *The Motor Cycle* scoring board was a great success, and we should like to thank you for placing this at their disposal, and wiring them the results of the T.T. Race.

The Manx police are excellent fellows, a trifle too lenient perhaps (an error on the right side), and not very good at handling a crowd, but thorough sportsmen. After the farmer's horse had been removed from his cart, just before the race, a constable remarked to our correspondent, "They ought to strip the harness off the horse now." Superintendent Cain, who in Col. Freeth's absence through illness was in charge of the police arrangements, acted promptly when Bashall's machine caught fire, and quickly wrapped the plucky but luckless rider in a coat, thus saving him from severe injury. Sergeant King, whom Mr. Nisbet was giving a lift in his car, jumped off the step while the car was moving, fell, and cut his forehead rather badly—thus he whose duty it was to prevent accidents was unfortunate enough to experience one himself.

NORTHERN LEAGUE OF MOTOR CYCLISTS.

The annual meet and reunion will be at York on Military Sunday, June 5th. The League has made arrangements for luncheon to be served at 1.30 at the Royal Station Hotel at a charge of 2s. 6d., which includes free garage of machines.

It is hoped that all supporters and friends of the League, attached or otherwise, will attend the luncheon. Dr. W. H. Coates (Army Motor Reserve), a vice-president of the League, has kindly consented to preside. After luncheon a group photograph will be taken in the hotel grounds.

Will all club secretaries make a note of these arrangements, and advise the manager of the hotel as to the number of their members who will attend the dinner?

A meeting of the League was held on May 28th to consider and pass the proposed rules and constitution, which it was decided should be printed and sent out to all the clubs in the North.

More offers of support, both financial and otherwise, were received, and representatives from the Hull, Scarborough, Middlesbrough, Leeds, and Harrogate Clubs attended the meeting. It was also decided that the League title should be "The Northern League of Motor Cyclists," not "clubs," as hitherto.

One important point which was decided was that individual members should be admitted on payment of 10s. 6d. per annum.

The first meeting of the Council will be held shortly, as soon as the affiliation agreements have been signed and fees paid. The Council will then proceed to make arrangements for the first meet and competition. A hill-climb on Gunrowby Hill and a competition at Harrogate were suggested.

HOMEWARD BOUND.

Machines stacked on the foredeck of the "King Orry" on the return journey from Douglas last Saturday morning. There were 85 motor cycles on the boat.

THE SNAEFELL HILL-CLIMB.

The hairpin bend near the commencement of the hill-climb from Ramsey to the Bungalow at the summit of Snaefell. F. W. Chase (3½ Centaur) is seen rounding the curve.

The event which terminated the Isle of Man motor cycle race week was a hill-climbing competition on Friday afternoon from Ramsey to a point half a mile on the Ramsey side of the Bungalow Hotel. There were 83 entries, divided into eight classes, and the competition proved most interesting. The start was made close by the Hairpin Corner, and the distance is just over five miles. The surface of the road is very loose and gritty, but good on the whole. The climb up Snaefell, though stiff, is not too much for a really good 3½ h.p. touring machine. The steepest gradients occur on the first two miles, but, to add to the severity of the test, the road winds backwards and forwards, two curves—the Hairpin and the Gooseneck—being exceptionally difficult to negotiate. The last three miles of the climb is of easy gradient, the road, however, still winding and the bends being just too acute to enable the motor cyclists to round them without switching off. A fairly strong wind generally assisted the competitors, except at two points, where it occasionally upset the steering. Quite a crowd collected at the Hairpin Corner expecting to see some thrilling incidents, but there was little in the way of excitement to reward their curiosity, for most of the competitors travelled very cautiously at the Hairpin. The A.C.U. officials got the competitors away very smartly, and interest never flagged. There were a number of failures—J. L. Norton (Norton) failed to negotiate the severe bend, and in trying to remount missed his footrest and fell over the machine. He again pluckily started, and completed the climb at a rattling pace. Godfrey (Rex) suffered a bad fall after completing the most severe part of the climb, Fenn (Indian) failed owing to an error of judgment, Marshall (Triumph) was again dogged by ill luck, for this time his front tyre burst, and Bowen (Bat-J.A.P.) was too anxious to travel at full speed before he had accounted for the bends.

One of our staff took up his position at the upper of the two dangerous bends on the mountain road. While far less acute than the Ramsey hairpin, it makes an interesting standpoint, as the engines are already heated by several miles of stiff collar work, and unless the riders are very adroit the engines begin to knock on the steep corner and stop immediately above it. Every rider, except those on the Scotts, switched off at varying distances below the bend, and the great majority of the engines clanked heavily when the machines got their noses straight and work recommenced.

Class 2A.—Hoffman's Scott registered a magnificent performance—neat, fast, and devoid of fuss. Eastwood's Bradbury came round slowly, but picked up easily and well. Owers lifted his valve too early, and was slow in consequence.

Class 2B.—None of the Indian riders in this class shut their extra air below the bend, and being too busy to adjust it on the knuckle they found a difficulty in picking up afterwards. Dickson and Fenn had to jump off and run alongside. Hugh Gibson came up very fast, and had almost to stop in order to get round.

Class 3A.—Barnes smartly lowered his gear on the corner, and, picking up well, got away in grand style. Norton tickled his carburetter as he wrenched his machine round, and the long stroke engine ate up the gradient in response. Slaughter handled his machine better than any of his predecessors. The Triumph trio were magnificent, Jack Marshall being a shade the neatest and fastest. Turvey showed great respect for the bend, Chase was neat but slow, and the remainder mostly set their hot engines knocking. Adamson rode up to his reputation, and made the corner of the afternoon.

The Snaefell Hill-climb.—

CLASS 4A.—Evans did better than any other Indian, and his machine was more silent than any except the Scotts. Myers rolled smoothly round at a great pace. Bolton outshone all the other Rexes. Sproston had to get off and run. Perryman approached too fast, and apparently had to use his brakes.

CLASS 4B.—Moorhouse tried to close his extra air on the bend, and failed. Bentley was good, but Fenn, as usual, provided the chief sensation. He tore up to the corner at a perfectly crazy speed, though he stopped his engine lower down than anybody else. In the centre of the bend he performed a gigantic skid, rolling over and over in a cloud of dust. Picking himself up, he made a most plucky effort to restart, but the heavy machine was too much for him, and he fell gasping into the gorse at the roadside. Franklin picked up more smoothly than the other Indians, but the twins, on the whole, showed no superiority over the singles in this respect, probably owing to their gear ratios being high in view of the speed stretches higher up.

At the Finish.

There was nothing in particular to record at the finishing point. Those competitors who successfully completed the first couple of miles were easily capable of accounting for the remainder of the ascent. Nearly all the machines travelled very fast, the T.T. mounts in particular being wonderfully even. Some competitors wasted several seconds at every corner owing to switching off too early or too often. One or two, in their desire to waste no time, swerved very close to the edge of the road, where there was an almost sheer drop of several hundred feet.

The Results.

The times were announced early the same evening, and are as under:

CLASS 2A.—For genuine standard touring machines with engines having a cylinder capacity not exceeding 750 c.c. (Special and "Tourist Trophy" types of machine barred.)

P. Platt (3½ h.p. Bradbury)	9m. 44s.
J. Eastwood (3½ h.p. Bradbury) ...	9m. 49⅖s.
G. H. Owers (3½ h.p. Bradbury) ...	10m. 53⅖s.
J. A. Hoffman (4 h.p. Scott) ...	11m. 23⅕s.

CLASS 2B.—For genuine standard touring machines with engines having a cylinder capacity not exceeding 750 c.c. (Special and "Tourist Trophy" types of machines barred.) (Private owners.)

W. D. South (5 h.p. Indian)	9m. 43⅗s.
Hugh Gibson (3½ h.p. Bradbury) ...	9m. 47⅕s.
E. D. Dickson (5 h.p. Indian) ...	10m. 46⅕s.
G. H. Owers (3½ h.p. Bradbury) ...	10m. 53⅘s.
J. H. Hoffman (4 h.p. Scott)... ...	11m. 23⅕s.
A. G. Fenn (5 h.p. Indian)	1h. 10m. 18⅗s.

CLASS 3A.—For single-cylinder machines which competed in the T.T. Race. Not exceeding 500 c.c.

W. F. Newsome (3½ h.p. Triumph) ...	8m. 43⅗s.
W. Creyton (3½ h.p. Triumph) ...	8m. 54s.
J. W. Adamson (3½ h.p. Triumph) ...	8m. 56s.
H. Lister Cooper (3½ h.p. Triumph)...	9m. 5s.
C. E. Murphy (3½ h.p. Triumph) ...	9m. 21s.
J. Slaughter (3½ h.p. Ariel)	9m. 23⅘s.
W. G. McMinnies (3½ h.p. Triumph)	9m. 32⅗s.
F. W. Barnes (3½ h.p. Zenith-Gradua)	9m. 37s.
D. M. Brown (3½ h.p. Humber) ...	10m. 6⅘s.
W. H. Groves (3½ h.p. Ariel) ...	10m. 18⅖s.
R. Lord (3½ h.p. Rex)	10m. 23⅖s.
A. H. Alexander (3½ h.p. Rex) ...	10m. 39⅖s.
F. Turvey, jun. (3½ h.p. Humber) ...	10m. 56⅖s.
J. Norton (3½ h.p. Norton)	11m. 2⅕s.
W. E. Grange (3½ h.p. Rex) ...	11m. 29⅗s.
F. W. Chase (3½ h.p. Centaur) ...	11m. 34s.
A. R. Abbott (3½ h.p. Rex)	12m. 20⅗s.
F. W. Applebee (3½ h.p. Centaur) ...	12m. 47⅗s.

CLASS 3B.—For single-cylinder machines which competed in the T.T. Race. Not exceeding 500 c.c. (Private owners.)

J. W. Adamson (3½ h.p. Triumph) ...	8m. 56⅕s.
H. Lister Cooper (3½ h.p. Triumph) ...	9m. 5s.
C. E. Murphy (3½ h.p. Triumph) ...	9m. 21⅘s.
W. E. Grange (3½ h.p. Rex)	11m. 29⅗s.

CLASS 4A.—For multi-cylinder machines which competed in the T.T. Race. Not exceeding 670 c.c.

W. O. Bentley (5 h.p. Indian) ...	8m. 49⅗s.
G. Lee Evans (5 h.p. Indian) ...	8m. 52⅗s.
W. Heaton (5 h.p. N.S.U.)	9m. 3s.
Eric S. Myers (5 h.p. Scott)	9m. 30⅖s.
F. A. Applebee (5 h.p. Rex)	9m. 41⅘s.
David C. Bolton (5 h.p. Rex) ...	10m. 14⅖s.
S. C. Perryman (5 h.p. Blumfield) ...	10m. 17⅕s.
H. Bowen (5 h.p. Bat)	13m. 32⅗s.

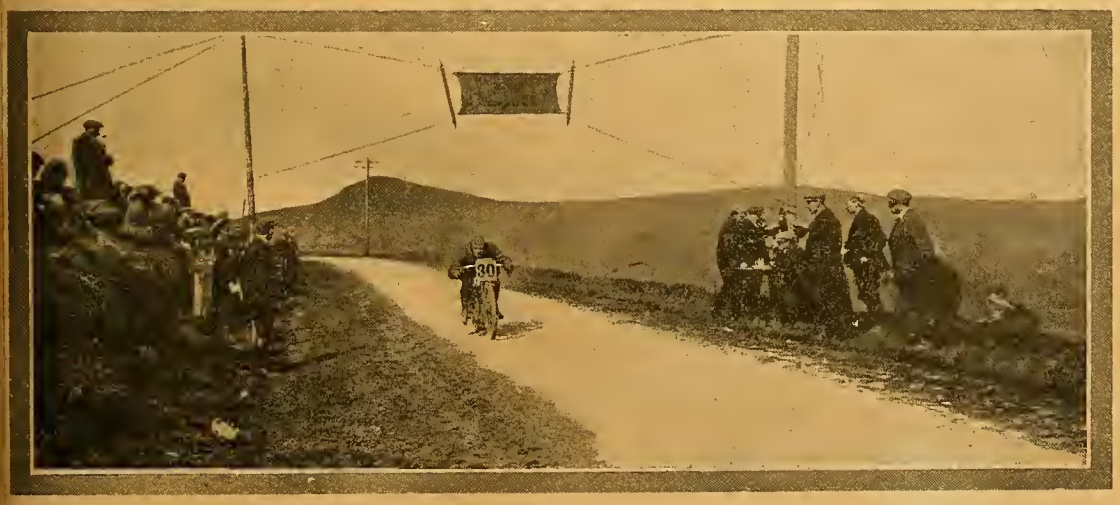
CLASS 4B.—For multi-cylinder machines which competed in the T.T. Race. Not exceeding 670 c.c. (Private owners.)

W. O. Bentley (5 h.p. Indian)... ...	8m. 49⅗s.
C. B. Franklin (5 h.p. Indian) ...	8m. 59⅕s.
J. Scriven (5 h.p. Rex)	8m. 59⅗s.
S. A. M. Witham (5 h.p. Bat-J.A.P.)	9m. 8⅗s.
P. Butler (5 h.p. Dot-J.A.P.) ...	9m. 18s.
J. Baxter (5 h.p. Rex)	9m. 57⅕s.
D. C. Bolton (5 h.p. Rex)	10m. 14⅖s.
H. H. Bowen (5 h.p. Bat)	13m. 32⅗s.
A. J. Moorhouse (5 h.p. Indian) ...	19m. 28⅖s.

CLASS 5.—For any type of machine not exceeding 1,000 c.c.

E. H. Lees (7 h.p. Indian)	8m. 55⅗s.
J. Scriven (3½ h.p. Ariel)	8m. 59⅘s.
W. Heaton (5 h.p. N.S.U.)	9m. 3s.
S. A. M. Witham (5 h.p. Bat) ...	9m. 8⅗s.
P. Butler (5 h.p. Bat)	9m. 18s.
J. F. Slaughter (3½ h.p. Ariel) ...	9m. 23s.
Eric S. Myers (5 h.p. Scott)	9m. 30⅗s.
W. H. Groves (3½ h.p. Ariel)... ...	10m. 18⅗s.

It will be observed that W. F. Newsome (3½ h.p. Triumph) accomplished the fastest time of the day.



A competitor at the finishing banner near the Bungalow at the summit of Snaefell Mountain. The time'keeper's telephone is stationed on the right.

Continen

READ what Competitors in the Tourist Trophy think of "Continentals."

Pneumique, London.

Continentals behaved very satisfactorily. Finished unscratched.

SPROSTON.

Pneumique, London.

Continental Tyres were quite satisfactory in T.T. Race. PHILIPP.

Pneumique, London.

Very pleased with Continental Non-skid Tyres—absolutely no trouble.

J. F. SIRETT.

Pneumique, London.

Continental Tyres gave no trouble whatever, and finished in splendid condition. A. H. ALEXANDER.

Pneumique, London.

Finished fifth in the T.T. Race Had no trouble whatever with Continental Tyres. JOE SCRIVEN.

Pneumique, London.

Continental Tyres ran through the Tourist Trophy Race without the slightest trouble, and free from skids. W. HEATON.

Pneumique, London.

Very pleased indeed with Continental Tyres used in the Tourist Trophy Race. HARRY REED.

Pneumique, London.

Continental Tyres fitted on my "Trump" have given every satisfaction dur ing Tourist Trophy Race and practising. GIBSON.

Pneumique, London.

Continental Tyres used in Tourist Trophy Race and practising gave the utmost satisfaction, and consider them the very best thing on wheels.

SCALE.

Pneumique, London.

Cannot speak too well of Continental Tyres, which I rode in Tourist Trophy Race. None better. DAYRELL.

Pneumique, London.

Pleased I rode Continental Tyres in the T.T. Race, as I experienced no trouble whatever. Extremely satisfied with their behaviour.

WEATHERILL.

Tyres

Motor-cyclists should write for our new Illustrated Booklet on "Continental Tyres and Belts"--Free on request.

Pneumique, London.

Continental Tyres gave complete satisfaction in T.T. Race. LORD.

Pneumique, London.

Was more than pleased with Continental Tyres, which took me through in my T.T. Rex without any trouble whatever, 4h. 5m. WOODWARD.

Pneumique, London.

Most pleased with Continental Tyres in Tourist Trophy Race. Although only finished nine laps officially, found them very fast. BANNS.

Pneumique, London.

Delighted with Continental Tyres, which gave me no trouble whatever in T.T. They are both fast and durable. Tyres on my machine are in perfect condition. McNAB.

Pneumique, London.

Continental Tyres stood the T.T. course A1. Highly satisfied. Finished the course without any tyre trouble whatever. W. E. GRANGE.

Pneumique, London.

Fell at Ballacraine, and hurt back. Completed seven rounds. Tyres showed no signs of wear. Shall use in all events this season. HOULDING.

Pneumique, London.

Continental Tyres gave us every satisfaction both in the race and practice. SCOTT ENGINEERING CO.

Pneumique, London.

Continental Tyres I used on my Rex in practising and Trophy Tourist Race behaved excellently. Consider non-skid most efficient. H. REM FOWLER.

Pneumique, London.

Continental Tyres on my Tourist Trophy N.S.U. simply splendid. No trouble whatever. WOOD.

Pneumique, London.

Continental Tyres on my Tourist Trophy N.S.U. gave me entire satisfaction. Had no trouble whatsoever. Although the course was very rough and flinty, not a scratch on my tyres. OBERLANDER.

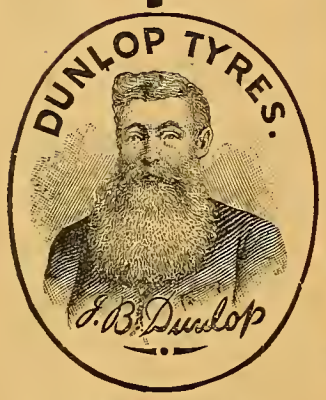
Pneumique, London.

Tyres behaved splendidly on my T.T. machine. PERCY BUTLER.

In answering this advertisement it is desirable to mention "The Motor Cycle."

WHERE AWAY THIS YEAR?

We are not curious, but just want to remind you that it doesn't much matter where you travel or how far you travel if your motor cycle is fitted with



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RUBBER-STUDDED TYRES.

However rough or broken the road surfaces you may have to traverse, you'll find these tyres equal to any emergency, because they are made specially strong for touring—extra strong walls, extra thick tread—extra good quality of rubber.

MAKE A POINT OF EXAMINING ONE.

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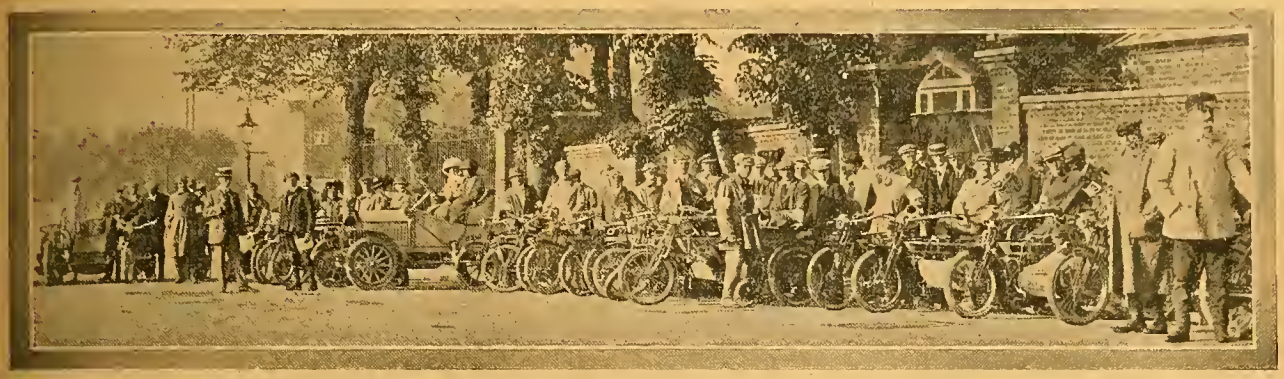
NOTE—Tyres from which the Dunlop Co.'s private marks have been removed are not guaranteed.

LONDON TO COVENTRY AND BACK.

THE NORTH-WEST LONDON M.C.C. TWELVE HOURS RUN.



N.W. London M.C.C. 12 hours run to Coventry and back. Competitors lined up before the start at the Jack Straws Castle.

THE above event (which was postponed in consequence of the late King's death) was run off most successfully last Saturday. The object of the trial is to prove reliability and ability to run to time. There were three secret checks each way and a control at each end.

The Start.

At 6.30 a.m. Jack Straw's Castle at Hampstead presented quite an animated appearance, as by that time nearly all the competitors had arrived and were busy getting their armlets fixed and giving their machines those finishing touches that all keen competitors delight in.

Mr. T. G. Blundell, jun., smartly marshalled the men into their places, and No. 1, E. W. Ashworth (5 h.p. V.S. and sidecar), was punctually sent off at 7 o'clock by Mr. H. V. Davidson, jun. The other competitors were then despatched at one minute intervals as follows:

E. A. Colliver (3½ Triumph)
E. W. Brighten (8 J.A.P. s.c.)
C. Williams (8 J.A.P. s.c.)
J. Doe (2¾ Douglas)
C. Crole Rees (6 Advance s.c.)
H. Hill (8 Bat)
H. J. Pooley (3½ Premier)
E. G. Westacott (3½ Triumph)
E. Gwynne (3½ T.T. Triumph)
G. H. Hollis (3½ Triumph)
R. Scott (5 Indian)
G. B. Owen (3½ Ariel)
Miss Berend (2 Moto-Rêve)
W. Cooper (3½ Bradbury)
A. C. Robbins (3½ Humber two-speed)
C. J. Burton (T.A.C. s.c.)
G. E. Purchase (3½ Triumph)
H. C. Bean (3½ Triumph)

The route followed was *viâ* Watford, Berkhampstead, Aylesbury, Bicester, Shipston-on-Stour, and Warwick, and as Brockley Hill just beyond Edgware is about a mile long, and fairly steep near the top, we found several motor cyclists here to see the competitors climb it. It must be said that many of the machines made a very poor show. Colliver, who arrived first, came up fast, and showed himself a practised hand at hill-climbing. Ashworth had plenty in hand on the low gear. Brighten also came up well on the low gear. Doe was slow, but did not pedal. Williams dismounted and ran alongside. Crole Rees shed his passenger, who helped by pushing. Hill was fairly fast, and obviously had plenty in hand. Pooley's engine was knocking badly, and he stopped near the top. Westacott was slow, and his engine was knocking badly; he also had to pedal to finish. Gwynne was very fast. Hollis's engine was knocking, and he pedalled near the top. Scott came up comfortably with plenty in hand. Owen's engine knocked slightly on the steepest part. Miss Berend pedalled slightly at the steepest part and a little near the top. Cooper came up slowly, because he was ahead of time and thought he was in a secret check. His engine behaved splendidly, and there was no sign of a knock, as in the other machines that came up slowly. Robbins was very slow, as his belt was slipping, and he dismounted near the top. Burton's T.A.C. was in very poor trim, as he dismounted on the steepest part and ran alongside all the way up. Purchase came up well, but pedalled near the top. Bean pedalled all the way up.

The First Secret Check

was four miles beyond Aylesbury, and several competitors were caught considerably ahead of time. Pooley was in trouble with a slack tyre near Tring, and Scott had a broken chain near Aylesbury. A number of the earlier ones were detained at Bicester level crossing, and stopped here for petrol. This was unfortunate, as the next secret check was only about three miles beyond, and they were consequently considerably out. Near Middleton Stoney we came up with Mr. G. Rowden (trials hon. sec.) with Mr. C. A. Stern (hon. sec.) in his sidecar. He was marking the course with the excellent N.W.L.M.C. arrows, but had, unfortunately, had an argument with a large nail and punctured his back tyre. Several of the competitors were here shortening belts and making sundry small adjustments. Near Chipping Norton Pooley's bad luck in tyres again overtook him, and he had a

THREE SURVIVORS IN THE 12 HOURS LONDON-COVENTRY AND BACK RUN.
H. J. Pooley riding a 3½ h.p. Premier. E. Ashworth (5 h.p. V.S. and sidecar) starting. H. Hill (8 h.p. Bat-J.A.P.) approaching Golder's Green.

London to Coventry and Back.—

double puncture in the back tyre. This provided rather an amusing incident at the next secret check—the mile-post ten miles south of Warwick. Pooley had stopped to pump up his back tyre, as he had left it slack in mending the puncture, and just as he had finished happened to notice the small red flag of the secret check quite close to him. He gave an exclamation, and rushed his machine down to the check with the stand trailing. He was quite upset, and seemed to think that a secret check should be easily seen! Other competitors fell right into the check, and a number were ahead of time.

Crole Rees had something amiss with his engine at Bicester, and was considerably delayed, but was again on time at this check. Burton had trouble all the way to near Bicester, and he was finally out of the competition here through the worm wheel on the back hub coming unscrewed and jamming. It took him four hours to get right, and he then returned to Hampstead to see the finish.

A Lady Competitor's Misfortune.

Miss Berend punctured the rubber petrol pipe from the auxiliary tank on the carrier near Shipston, and ran out of petrol. She took the carburetter to pieces, thinking it was a choked jet, and finally had to walk over a mile to get more petrol. Later on she was met by the returning competitors near Kenilworth with a broken belt fastener, and then decided to return without checking into Coventry. Mr. Rowden replaced the fastener, and she forthwith returned to London, arriving a few minutes after the last competitor.

The Coventry control was very ably conducted, and competitors had to proceed at once to the King's Head Hotel and give up their machines to a marshal. One hour was allowed for lunch and control, and the machines were handed back in time only to fill up with petrol and oil and to get back to the check, half a mile outside the town.

All the starters from London arrived excepting Miss Berend and Burton, and they all checked out to time.

The first secret check was near Bicester, and again the level crossing delayed some of the competitors. Miss Berend, who had just caught up the last man, was very unfortunate, as the gates were shut right in front of her, and she had the mortification of seeing all the other competitors disappear in the distance.

The second check was on the London side of Aylesbury, and most competitors were well on time here. Pooley complained of overheating in consequence of the following wind. The third check was in Collin Deep Lane, near Hendon, and was one of the best checks, being immediately round a blind corner. On the last hill near the finish Crole Rees had a slipping clutch, and only just managed to get up. A large crowd of motor cyclists and spectators gathered to see the finish, and Miss Berend received quite an ovation for her pluck in returning by road after her troubles. The return journey was practically uneventful, and all the competitors to check out of Coventry arrived at Hampstead to time.

The winner of the cup and the other awards will be announced after the checking sheets have been collected and the times worked out and passed by the judges, Messrs. R. G. Booth and H. G. Cove.

Messrs. Glynn Rowden and A. C. Stern are to be congratulated on the organisation, and thanks are due to Dr. Watson for taking the official watch through on his Bedford car.

CLUB NEWS.

Southern M.C.

The Triumph cup reliability trials will be held on June 5th, to Blandford and back. Competitors are asked to meet at the tenth milestone from London, on Staines Road. Gold medals will be awarded to all competitors finishing with a loss of not more than ten points. Entries are still required to complete team for the M.C.C. inter-team trials for *The Motor Cycle* cup. Members joining at once may compete in above events.

Herts County A.C.

The motor cycle section of the above club will hold an eliminating competition on Saturday next, to select teams for the M.C.C. inter-club team trials, and the A.C.U. inter-club championship trials. The competition will start from the Red Lion Hotel, St. Albans, at 3 p.m. The route will be to Daventry, *via* Redbourne, Dunstable, Fenny Stratford, and Weedon, returning by the same route. Bronze medals will be awarded to all riders who fulfil the conditions of the trial and make non-stop runs.

Leith M.C.

The above club held a reliability trial last Saturday over a distance of 110 miles. There were seven controls, including a secret control, and it was the latter that caused more than one rider to lose marks, as a standard of eighteen miles an hour was to be maintained, and every minute early or late was a mark lost. The following finished within time: Medal winners, Wm. Sorley (7 Peugeot) and A. B. Lindsay (3½ Triumph), no marks lost. Also finished: T. Turnbull (3½ Triumph), 1 mark lost; R. H. Mouat (3½ Griffon), 11 marks lost; Jas. M. Dobson (4 Indian), 11 marks lost; D. Shadden (3½ Midget Bicar), 17 marks lost.

Westmoreland M.C.C.

The above club held a most successful hill-climb on Saturday last on Sug's Vicarage Hill, near Staveley, a short but very steep hill, averaging about 1 in 6. The prizes were given by Dr. Dick, of Staveley, and were of a very substantial nature. There was a good number of competitors, and the results were: H. Harrison (1910 Bradbury), fastest time, 1st on A.C.U. formula; R. Hutchinson (1909 Bradbury), 2nd; W. Westwood (1909 Triumph), 3rd.

The secretary wishes to draw members' attention to the Greyhound Hill-climb on June 9th, at 5 p.m., when five prizes will be offered, given by Mr. V. G. Blackburn, of Windermere.

The A.C.U. (Metropolitan Centre).

Honorary secretaries of clubs forming the Metropolitan Centre of the A.C.U. are earnestly requested to send their entries for the preliminary contest for the inter-club championship as soon as possible. The eliminating trials will be held on June 25th in the neighbourhood of Beaconsfield, starting at 10 a.m. The last day for the receipt of entries is Saturday, 11th June. Entry forms should be addressed to Mr. H. B. Renner, hon. sec. A.C.U. Metropolitan Centre, 112, Piccadilly, W. Members are also reminded that on the day following the event, Sunday, June 26th, the river excursion will be held, when ladies will be specially welcome.

Pontefract M.C.

Inspired perhaps by the Tourist Trophy Race, the Pontefract M.C. held six motor cycle speed events on May 26th, in Bryam Park, Brotherton (by kind permission of Sir John W. Ramsden, Bart.) The length of the track was a measured mile, and racing took place over half the distance, a quarter of a mile being allowed in which to accelerate, and a quarter of a mile in which to pull up. Competitors making fastest time in each class were declared the winners of the various classes, but they had to ride over the course a second time, when the one who made the highest percentage of improvement (subject to a limit) became the winner.

RESULTS.

Class C.—1909 and 1910 Single-cylinder Machines.

Will Bentley (3½ h.p. Triumph) ... ... 35⅕s.
Ed. Lee (3½ h.p. Triumph) ... ... 39⅕s.

Class B.—1908 and previous models.

E. M. Dolan (Triumph) ... ... 40⅕s.

Class A.—Lightweights.

C. P. Finn (Royal Enfield).
R. F. Turner (Motosacoche).

Class D.—1908 Twin-cylinders.

Roslyn Holiday (Rex) ... ... 45⅖s.

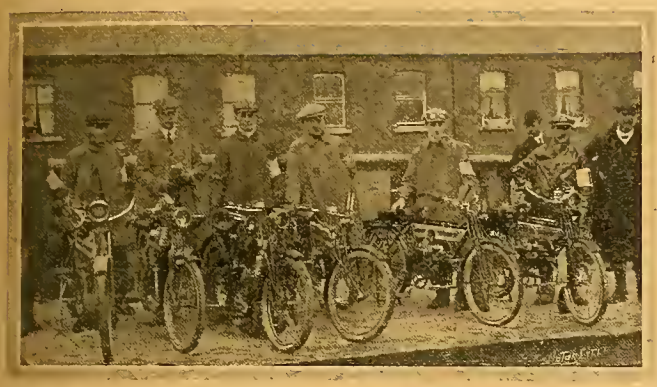
Class E.—1909 and 1910 Twin-cylinders.

Ed. Lee (Scott) ... ... 40s.

Final.—W. Bentley, 35⅗s.; E. M. Dolan, 38s.; R. F. Turner, 52⅗s.; R. Holiday, 39⅗s.; Ed. Lee, 38⅗s.

Holiday's percentage of improvement (12.77) disqualified him; Dolan (9.52) was declared the winner. Bentley 4.81, Lee 4, Turner 2.23.

Club News.—



Starters in the Dublin and District M.C.C. Reliability Run to Lisburn and back for the White Cup. The winner has not yet been announced.

Leeds M.C.C.

The competition for the Kelly Cup did not take place on the 22nd ult., as arranged, there being only eight entries up to Saturday noon. The event will take place at a later date.

M.C.U.I. (Dublin Centre).

The inter-centre contest for the Triumph Cup between the Dublin and Belfast Centres of the Union will take place on the first Saturday in July, starting from Talka Bridge, Dublin, and finishing at Belfast.

North-west London M.C.C.

The members' hill-climb will be held on Saturday, June 11th. A hill has been chosen of a moderate gradient, and lightweight and passenger classes will be included. It is hoped that a really good entry will be forthcoming, as two prizes will be offered in each class, provided there are sufficient entries. Entry forms and fees should be sent to Mr. Frank Thomas, 172, Belsize Road, N.W., not later than Monday next, the 6th inst. The gymkhana will be held on a private road on July 2nd.

Herts A.C. (Motor Cycle Section).

A strenuous competition for a cup to be presented by the Triumph Cycle Co. will be run off on July 30th and August 1st. The route will be to Kendal and back, *via* the Great North Road, Wetherby, Otley, Skipton, and Settle, returning by Penrith, Stainmore, and Scotch Corner. There will also be a cup offered for twin-cylinder machines. A hill-climb on Shap will be included on the return journey. To motor cyclists on the look out for an interesting event through some of the best English scenery this competition should strongly appeal, and they are reminded that early application for membership is necessary, as the committee for election only sits once a month. Enquiries should be addressed to Mr. C. C. Cooke, North Mimms, Hatfield, Herts.

York County M.C.C.

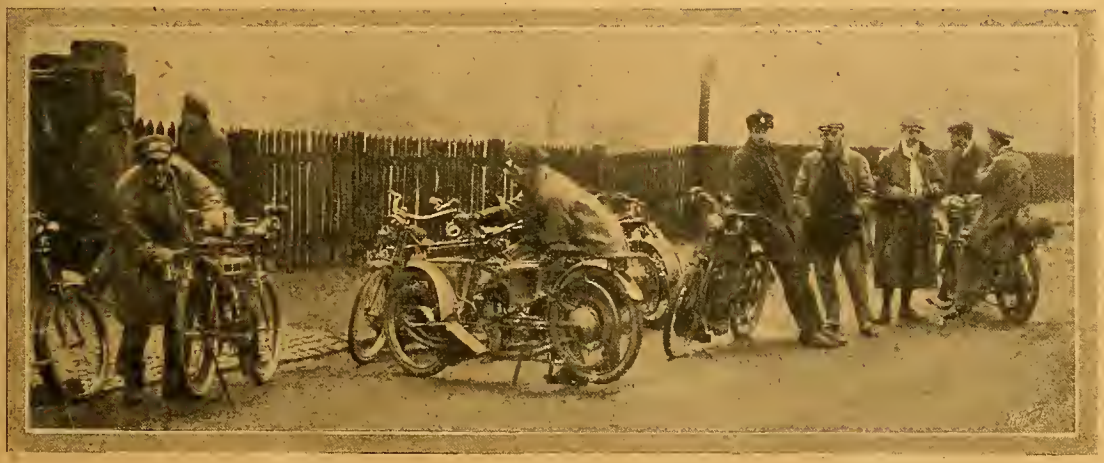
The results of the first quarterly trial, held on the 22nd ult., are as follows: Non-stops—H. Wilkinson (3½ h.p. Triumph), W. E. Asquith (3½ h.p. Triumph), J. C. Bennett-Mitchell (3½ h.p. T.T. Rex), R. W. Glenn (3½ h.p. Triumph), N. Miers (5 h.p. Rex), E. Clough (3½ h.p. Triumph), F. C. Speke (7 h.p. S. and R.), S. Graham (3½ h.p. Triumph), A. B. Bilbrough (3½ h.p. P. and M.), F. Scott (3½ h.p. Triumph), H. A. Ramsden (7 h.p. S. and R.) punctured, and C. H. Johnson (2¾ h.p. Lloyd) broke the petrol pipe.

Ayr and District M.C.

A slow hill-climb was held by the A.D.M.C. on Monday evening, May 23rd, at the Asylum Brae. Considerable amusement was caused by the majority of the competitors failing to go the length of the course through starting too slowly. The following were the results:

	Rider and machine.	Time.
1.	J. Meredith (3½ h.p. Triumph) ...	2m. 53.6s.
2.	Robert Dickie (3¼ h.p. Rex)	2m. 32s.
3.	A. McG. Morton (3½ h.p. Triumph)	2m. 10.4s.

George Brough, jun. (3½ h.p. Brough), who won the M.C.C. Challenge Cup in the London-Edinburgh and Back run with a total variation in time of 10m. 43s. only.



Birmingham M.C.C. Reliability Trial to Lincoln and back. Early dawn on the 17th ult. Competitors assembling at the starting point.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor. "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Belt Fastener Screws.

[4785.]—With reference to "D 3895's" letter in the last issue *re* "Belt Fastener Screws," the undernoted will be of interest, as your correspondent is only one of the many with this grievance. Being urged by some users of D'All fasteners for improvement in that line, and recognising the need for same, I have just made one or two alterations whereby the fitting to the belt is almost as easy as linking up the ends of the fastener. The pin is D-headed, and of sufficient length for the threaded end to project through the belt a quarter of an inch on top side, to take an ordinary hexagon nut of ample dimensions. No screwdriver is required, the procedure being: Push bolt through hole, run on nut, and tighten up with spanner or pliers; the nut will not come loose. The flat on head of bolt registers with the curved end of the U link, and keeps the pin from turning round when nut is being turned either way. J. B. DALL.

Slow Running.

[4786.]—Perhaps "One of the Heavy Brigade" may be interested to read the following:

I bought a new "single" of first-class make this year, and though everything was in tip-top order, I could not get the pace below 15 m.p.h. under any conditions of mixture without constant misfiring.

I eventually wrote to the makers, who advised me to separate my sparking plug points a trifle. This, much doubting, I did, and can now drive at "walking pace" with a fully advanced spark, and with the spark slightly retarded at a trifle under 5 m.p.h.

I might say that when a proud owner boasts of driving at "walking pace" he is naturally referring to the best quality of the article, say 7 m.p.h., and not to the untrained pedestrian's dilatory style of progression. AW 2.

Running Costs.

[4787.]—As it may be of interest to some of your readers I send you herewith a summary of the careful accounts I have kept of the cost of running my 2¾ h.p. F.N. motor cycle almost every day in all weathers for the last three years. I bought the machine in May, 1907, second-hand (it had, however, only run 500 miles), and the total capital expenditure was £23 3s. 6d.

After the machine had run 4,300 miles, including the 500 before I had it, the original Engelbert tyres were worn out, and I replaced them with Palmer Cords, which have now done over 7,000 miles, and look good for another 7,000. After 10,800 miles in all, the compression was very bad, and I had the cylinder rebored and a new piston and rings fitted.

Since I have had the machine I have been 11,137 miles on it, the cost being as follows:

		Per mile.
Petrol, 107 miles to the gallon ...	£5 19 9	.129d.
Oil	1 4 6	.026d.
Tyres, and repairs to same ...	5 11 9	.120d.
Transmission (belts, fasteners, and pulleys)	3 11 9	.077d.
Engine repairs	2 2 8	.044d.
Repairs to machine	1 11 10	.034d.
Sundries	1 6 5	.029d.
Licences and interest on capital ...	3 9 6	.075d.
Total		.534d.

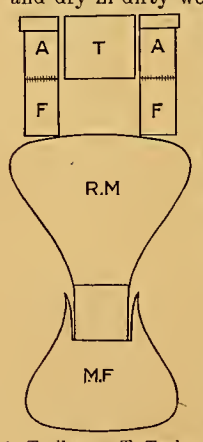
This includes nothing for depreciation. DI 51.

Hill Climbing.

[4788.]—May I enquire through your valuable paper whether any motor cyclist has succeeded in climbing "Sookham's Hill" or the Caterham Road? I ask this because on Whit-Monday I succeeded in making a clean ascent in the presence of Messrs. R. G. Nye and A. R. Hunter, both members of the Streatham and District M.C.C., and was informed by the occupier of the house at the bottom that no motor cycle or car had ever succeeded in getting to the top before. I do not know the gradient, but should imagine it to be about 1 in 6 average, with two very steep bits of about 1 in 4. The surface is awfully loose, stones abounding everywhere. My machine was a 1909 3½ h.p. Bradbury in full touring trim, minus pedalling gear, geared 4¾ to 1. Wishing you continued success, D. R. GREIS.

Cleanliness.

[4789.]—We are all interested in keeping our legs clean and dry in dirty weather while motor cycling. This has been carried out in several ways, all more or less unsightly. I venture to submit the following sketch of an arrangement I have carried out with fair success on my Triumph.



A. Toolbags. T. Tank. F. Flaps. RM. Top mud flap. MF. Bottom mud flap.

To begin with, I have mounted my toolbags one on each side of the tank, in similar fashion to the F.N. Below these on either side I have attached a neat japanned leather flap. On the front mudguard I have fitted one of the regulation mud flaps as fitted by the Triumph Co. to their magnetos, but with the broad part at the top. This coincides with the original magneto flap towards the bottom. You see, therefore, that, commencing with the toolbags and finishing with the magneto flap, there is a continuous overlapping protection from knee to ankle, which at the same time does not impede the cool draught of air so necessary for an air-cooled engine. FLAPPER.

An Extended Trial of a Scott.

[4790.]—I am a very enthusiastic rider of one of the 1910 3½ h.p. models of this make, and cannot understand how it is you find its petrol consumption so heavy. Since reading the article I have made careful tests with my machine, and find I can easily average 70 to 75 m.p.g. A friend and myself, both mounted on Scotts, recently did 155 miles on two gallons of spirit; this run was by no means a non-stop, neither was it over flat country (nor were we under 20 m.p.h. all the time), but when you take into consideration the fact of its being a two-stroke engine, I think the machine very economical, and can be very favourably compared with the average four-cycle twins. As regards the Scott being capable of holding its own with the best 3½ h.p. singles of orthodox type, there is no doubt about this, as my experiences so far lead me to believe that a goodly number of 5 h.p. twins will have their work cut out to keep up with them; leave them, the majority of the standard twins cannot. I rode a fast 3½ h.p. last year, but it was not a patch on the Scott in any respect. I have no fault to find with the machine; it is not perfect yet, we know, but it is, to say the least of it, five years ahead of anything else.

REKAB, JUN.

A Puzzle or a Poser.

[4791.]—I have a B. and B. carburetter on my 3½ h.p. ——, and certainly fifty per cent. of the petrol was blown back through the air port. I have now fitted a fresh cam for lifting the valves having a top about an inch long, or practically double the length of the old one. This holds the valves open longer and has completely cured the back-blow, besides increasing the effectiveness of the engine to a surprising extent, while I have been able to reduce the size of the jet. EDWARD W. FORWARD.

Jamming of Carburetter Pistons.

[4792.]—Has any motor cyclist experienced the same trouble as myself in connection with the carburetter fitted to a.o.i.v., the old pattern P. and M.? Every time I go out, after running about twenty miles, the extra air lever jams, owing to dust getting between the air piston and the sides of jet chamber and so fixing the said piston.

This means that I have to drive with fixed air and control by means of throttle only for the rest of the run, then at the first stoppage dismantle carburetter and clean it. I may mention that the air piston jams so much that nothing short of a hammer and punch will persuade it to move at all.

While writing I should like to mention that I have had exactly the same troubles with security bolts and spoke-head punctures as Mr. Briggs, and had to cover the bolts and fix spoke bands to obviate this nuisance.

TROUBLE.

Riding Conditions in County Donegal.

[4793.]—I should like to caution any motor cyclist who may be thinking of touring through Co. Donegal in the near future. Practically all the roads in the county are at present covered with loose stones, and as these have only recently been put down (why now, instead of last autumn—the proper time—probably only the County Surveyor and the contractors know!), some of the most beautiful scenery in the British Isles will only attract the motor cyclist to misery and trouble. Furthermore, until somebody armed with a shot-gun tours the county in a motor car and shoots all the big half-bred collie dogs he can find (and a busy month of it he will have), travelling for a motor cyclist in Donegal is absolutely dangerous. These big brutes are in swarms everywhere, and lie in wait behind corners, or rush out of open doors to the unsuspecting motorists' destruction at every turn. Why *did* Lloyd George not treble the tax on these useless curs and leave the poor motor cyclist alone?

I wonder when manufacturers, too, will realise the necessity of giving us really reliable and comfortable machines for Ireland? I at present, in common, I think, with most Irish riders, ride a Triumph, and the fact that I have ridden my machine several thousand miles during the past winter over the worst of our roads without a single mechanical breakdown speaks wonders for the Triumph engine. In wet weather, however, the rider is soon completely covered with mud, the belt starts slipping, and at the first sharp rise the unfortunate rider has to get off and push 200 lbs. of metal in his heavy sodden clothes. Protection for the rider and the transmission in mud and wet are ludicrously inadequate. I should much like to see some of the expert trade riders from England trying to climb, say, the hill at Creeslough, or Ballintoy, in wet weather, with a further run on to Doochary, and up the corkscrew hill to Dungloe. I think we should hear less then about the charm of the belt drive, or the superfluity of two-speed gears. Also, when the riders found their handle-bars to be only occasionally within their grasp, and their connection with their saddle decidedly of the make and break order, they could begin to feel less sure of the accuracy of the makers' catalogue description of the springing arrangements. Both are quite inadequate for Irish roads.

Let the Wilkinson Sword people bring over a few T.A.C. machines with their three-speed gears, worm drive, sprung frames, and better protection for the rider from mud, and if they can prove the ability of their machines to stand hard wear, and give no trouble over our Irish roads, I believe they will find many purchasers.

Ireland, with her few railways, and other slow methods of transit, offers a good field for the manufacturer who will cater for the real needs of would-be riders. There are many!

IMPROVEMENT.

Tyres for Irish Roads.

[4794.]—It may interest your correspondent, T. P. Henry, to learn that I have been using my 1908 Triumph, with a ROM tyre (26in. by 2¼in., rubber crossbar and steel stud pattern) on the rear wheel, and a Clincher Dreadnought tyre on the front wheel with entire satisfaction.

The country travelled is that between Killarney and the coast, but every rideable road is covered in addition to the main routes, and since I came here last September I have ridden 1,700 miles, my only tyre trouble being one horse-shoe nail puncture to the front wheel (Clincher) cover.

The steel studs of the ROM cover are intact, and the rubber bars show very little wear indeed, although the roads here, in addition to being made without steam rolling, are hilly, and in some cases rather bumpy.

I have not suffered a sideslip, although riding throughout the winter. J. F. O'CONNELL.

Chain Drive—An Appreciation.

[4795.]—I am sending you along a photograph of the 3½ h.p. 1910 Phelon and Moore with which I was able to score in the Streatham and District Hill-climb, gaining highest marks of merit against all comers in all classes. The combined weight of machine and sidecar with passengers was 641 lbs., and it climbed the hill with a good deal to spare in grand style.

A lot has been said lately *re* chain and belt, and after experience with the former as the method adopted by this excellent firm, I feel those who foster the latter cannot have had opportunities of investigating the merits of the chain drive in a practical form. I have ridden this identical machine 2,500 miles, mostly in winter and rainy weather, and the transmission has not given me one ounce of trouble. In fact, the chains might as well have been sealed in out of sight for the attention they required, or even that they appear to require in the future. I have not met the hill on the roads I frequent that the engine will not take sidecar and passenger up, and in this I include Bury Hill, Bognor Road. I have found it takes a good twin to hold it on give and take roads when it is going, and I can comfortably average twenty-five miles an hour, mile after mile. I have touched forty with sidecar and passenger—total weight twenty-four stones on level road.

H. P. White, the writer of the letter on chain transmission.

For ordinary touring purposes I cannot conceive that a more satisfactory and no trouble machine could be wished for than this 1910 model, and I can say that my experience extends over a number of years with most makes, including twins and four-cylinders.

The soul of the P. and M. is, of course, the two-speed gear and chain drive. In traffic the gear becomes almost human, and I believe I could run it at three miles an hour if need be. The extent to which the gear can be slipped without perceptible harm is remarkable.

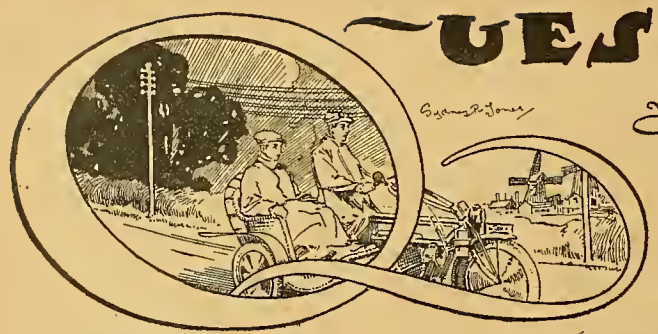
In conclusion, I should like to say that there is one thing about my P. and M. that was not possessed by any other machine I have had, and that is that I have always been sure it will start when I get it out of the garage, at a touch, and like most things that are good it gets little attention.

I shall be glad if you can insert these remarks as a guidance to others, as there must be many who are looking for a really reliable mount. H. P. WHITE.

EXPERIENCES WANTED.

"C. R." (Alderley Edge) would like readers' experiences of the P. and M. two-speed gear in use with a 7-8 h.p. twin engine and sidecar.

"R. C. S." would like readers' experiences with the Scott, particularly as regards compression (does it hold good for a long time?), wear of bearings, and consumption.



QUESTIONS AND REPLIES

A selection of questions of general interest received from our readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Newmarket to Louth (Lincs.)

Might I trouble you to inform me the best route to take on my motor cycle from Newmarket to Louth, Lincolnshire?—M. L.

We think you will find that the best route is Cambridge, Huntingdon, Stamford, Grantham, Lincoln, Louth. There is an alternative route *viâ* Peterborough, Sleaford, Tattershall, and Horncastle, but it is very little nearer, and we recommend the former.

Bristol to Bournemouth.

Will you be so good as to tell me the best route to Bournemouth from Bristol?—B.H.J.

We should advise you to go as follows: Bristol, Bath, Warminster, Heytesbury, Wilton, Salisbury, Fordingbridge, Ringwood, Christchurch, and Bournemouth. There is an alternative route *via* Warminster, Shaftesbury, Blandford, Poole, and Bournemouth, which is shorter, but we recommend the first.

To Facilitate Starting.

I have a Scott motor bicycle and I find a certain amount of difficulty in starting easily from cold. Can you advise me if there is anything special to do to the Scott machine to enable it to start more readily? When once started and engine is warm there is no difficulty whatever, as it starts the first time the lever is pushed down, but from cold I find considerable trouble.—TWO STROKE, Stoke Newington.

We recommend you to ascertain that the holes in the jet are not partially stopped and sparking plugs quite clean with points adjusted close together. Of course, according to the makers' instruction book, petrol must be injected into the transfer ports through the spring valves at the side of each cylinder, and carburetter should be well flooded. Do not attempt to start engine when jacked up on the stand. The makers specially recommend engine to be started with back wheel resting on the ground. This may be due to the fact that when the machine is jacked up it slightly upsets the level of the spirit in the jet, as we find from personal experience that the engine starts better with the machine off the stand. Like other engines, it is, of course, necessary to see that there is no leakage of air between engine and carburetter, and also that the transfer port covers are firmly screwed down.

Of Interest to Club Secretaries.

I am on the trials committee of a new club, and not having had much experience of the work would be greatly obliged by your giving me some information regarding the following points: (1.) How are motor cycle hill-climbs conducted in the best and most satisfactory manner regarding classes, twins, singles, and lightweights, also old crocks—say previous to 1905 or 1906? What formulæ would you advise? (2.) Rules governing short reliability trials of, say, 100 to 180 miles? (3.) How do you define a standard touring machine—per maker's catalogue? (4.) What factors do you take into consideration in a consumption trial? (5.) What novelties would you suggest for a sporting event? (6.) Is the A.C.U. formula, $\frac{\text{capacity} \times \text{time}}{\text{weight}}$, fair to all twins up to 5-6 h.p.? (7.) How could I construct an electrical timing apparatus?—COMMITTEEMAN.

(1.) This question is best answered by referring you to the report of the A.C.U. hill-climb, held in the Isle of Man last week. You will then see how the classes are arranged. For a hill-climb divided into classes, results are usually on time. (2.) Write for the rules of the Quarterly Trials to the secretary of the A.C.U., 18, Down Street, Piccadilly, W. (3.) A standard touring machine is defined by the A.C.U. rules, which can be sent you on application. (4.) Weight of machine and rider and cubical capacity of engine. (5.) We must leave this to your own initiative. (6.) The A.C.U. formula is $\frac{\text{weight}}{\text{capacity} \times \text{time}}$. It is the fairest known at the present time. (7.) An electrical timing apparatus was described in *The Motor Cycle* for July 24th, 1907, and was used at Harrogate on July 25th, 1907. A back number can be obtained from our offices, 20, Tudor Street, E.C.

A group of T.T. competitors in racing attire. From the left the riders are P. Butler, H. Reed, H. H. Bowen, F. W. Dayrell, W. H. and J. T. Bashall, and G. E. Stanley.

Tuning up for Hill-climbs.

With reference to the tuning of a T.T. Triumph for hill-climbs, do you consider that the engine will take an extra large jet if I can get enough air at the same time, or does the power cease to increase after a certain volume of gas has entered the cylinder? Shall be pleased to hear from you to guide me in the matter, as I am not certain whether any advantage would be gained by enlarging the present jet on which the machine is very fast, but want to get as much out of it as possible.—CLUBMAN.

For hill-climbing purposes it is usual to fit a slightly larger jet and at the same time to increase the additional air openings. Some organisers of hill-climbing competitions might object to alterations being made to the machine; but we have heard of no objections raised to the removal of a portion of the carburetter chamber to allow more additional air to enter. You must bear in mind that when you cut the carburetter about in this way it renders the machine slightly less saleable, as for ordinary touring purposes there is certainly no advantage in increasing the size of the jet or the air holes over those of the standard make.

A Strange Experience.

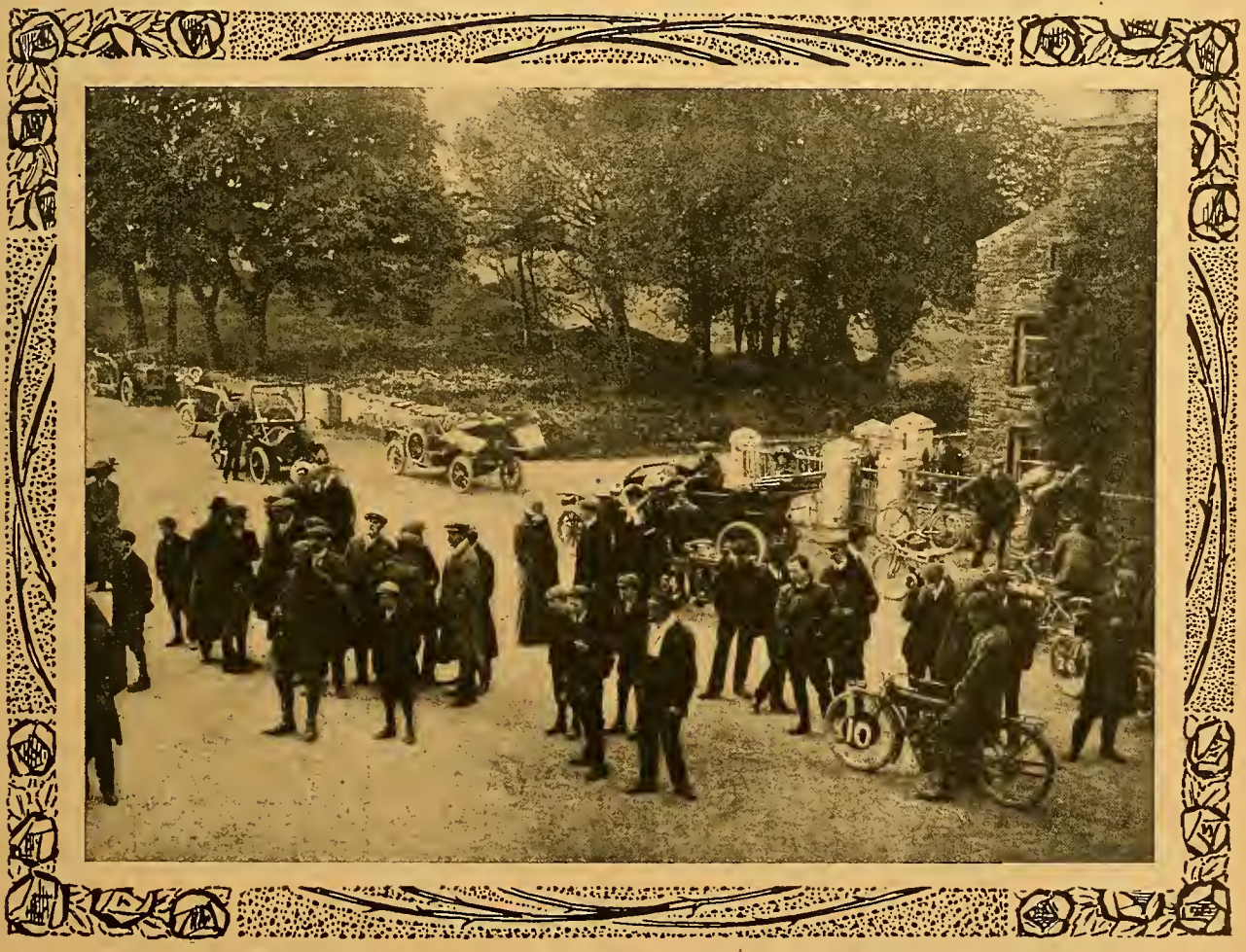
I had my spray carburetter to pieces a short time ago in order to clean the gauze intake, and since then I am unable to start the engine at all. Instead of a mixture a great deal of petrol is drawn into the combustion chamber; this soaks the plug and does not allow it to spark. The engine is in good order—compression and timing being correct. Ignition is good too, as the plug sparks well when off the machine. I put the carburetter together as I found it, still it seems to be the whole cause of the trouble. For any advice you can give me I shall be most grateful.—PUZZLED.

Your experience is a strange one. All we can think of is that the pistons in the carburetter are sticking, causing air holes to remain closed and perhaps throttle wide open, or the carburetter itself is flooding through the parts of float chamber and needle valve being in some way wrongly assembled. You do not say if the levers of handle-bar-controlled carburetter can be easily moved, but we should imagine one or other of the pistons has stuck. Our advice is to take the carburetter to pieces very carefully, to send to the makers for their book of instructions if you have not already got a copy, and then re-assemble the carburetter according to the instructions contained in the book.

Re-engining an Old Quadricycle.

(1.) What is the largest cylinder—water-cooled or with water-cooled head—which can be safely and easily adapted to fit the crankcase of an old pattern 2¼ h.p. De Dion engine, 70 mm. bore? (2.) Can the same connecting rod be used? (3.) Is there any larger engine with a crankcase of the same dimensions as the 2¼ h.p. De Dion which could be readily fitted in its place on a quad?—C. T.

(1.) The largest we have ever known fitted to the engine mentioned to give good results is the 74 mm. bore De Dion, which converts the engine to 2¾ h.p. (2.) The same connecting rod can be used. (3.) You could fit the following engines of larger dimensions: 2¾ h.p. De Dion, 3½ h.p. De Dion, M.M.C., or Aster. Ascertain if the axle is suitable for a more powerful engine. A firm which would be likely to supply you with articles such as you desire is Brown Bros., Ltd., Newman Street, Oxford Street, W.; Paris house, 31, Rue de la Folie Mericourt.

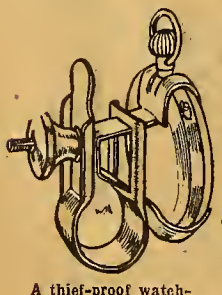


Competitors and spectators watching the practising for the T.T. Race at Ballacraine Corner.

Several new introductions have been recently added to the already long list of fitments designed for the comfort and convenience of motor cyclists, and made by Alfred Dunhill, Ltd., of Euston Road, London. As fast cars are getting quieter every day, a handle-bar mirror is becoming more and more a necessity, as by its aid following traffic can be observed. Even the fastest motor cycle is not *always* going "all out," so that it still needs a mirror when going at a moderate pace and perhaps with more reason, for it is then probably

Dunhill's Handle-bar Mirror.

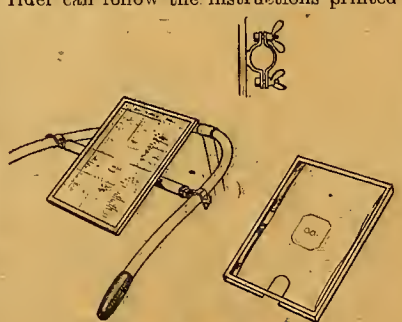
rather on the noisy side, and the rider is often prevented from hearing the warnings of overtaking cars. The accompanying sketch illustrates Messrs. Dunhill's new handle-bar mirror. Over all it measures about 8in., and weighs about ¾ lb. The clip with which it is fastened to the handle-bar is fitted with a rubber cushion. The bar on which the mirror is carried is attached to the clip through a simple locking device in which serrated faces are held together by a butterfly nut. No amount of vibration can cause the mirror to move when once fixed. The mirror itself has a convex surface, and this gives a very wide range of vision, not merely a section of the view behind, and is fixed to the bar with a screw clip, which permits it to be turned round the bar, and also to slide along it. Thus, in whatever position the handle-bar clip be placed the mirror can always be arranged to show the traffic behind. The whole is neatly and strongly made and is heavily nickel-plated.



A thief-proof watch-holder.

Those who carry a watch on their handle-bars know how convenient and useful it is, but not a few have also realised that most watch clips present a "dead easy proposition" for a casual thief. The one Dunhills have introduced for attaching a watch to the handle-bar has the great merit of being thief-proof. This fitting is shown in the illustration. The safety locking device is contained in the thumb-screw at the back, which cannot be unscrewed without a special key, which is of such a sort that it would be almost impossible to pick the lock with any instrument. The nut can, however, be freely screwed up without the use of a key. This useful little accessory is extremely cheap, and should meet with wide popularity. Two other accessories which will be sure to appeal to the motor cyclist who studies his own comfort are a padded saddle cover which can be attached by means of laces to any saddle, and a waterproof cap provided with "curtains" which encircle the turned-up collar of one's overcoat or mackintosh, and entirely prevent the rain from getting down one's neck. The cap complete folds up into an extremely small compass, and those who ride in all weathers should not fail to find a place for it in their permanent kit.

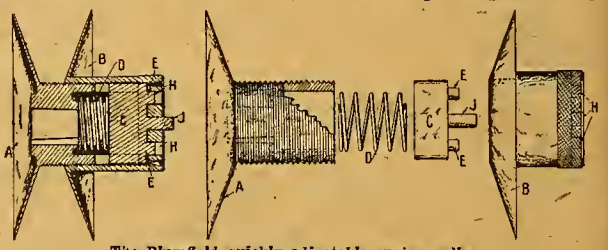
Mr. A. H. Hunt, 117, Cannon Street, E.C., recently got out a neat fitting which is sure to appeal to those motor cyclists who go in for long distance trials. It is a route card holder, which can be attached to the handle-bar by means of a cross piece, so that the rider can follow the instructions printed



A. H. Hunt's Route Card Holder.

on the route card without having to dismount. The construction is shown in the accompanying sketch, whence it will be seen that the route card and the piece of covering celluloid are simply slipped into the frame, which is so attached to the handle-bar as to be turned to any inclination desired.

The latest adjustable pulley which has been submitted to us is made by Messrs. Blumfield, Ltd., 70, Lower Essex Street, Birmingham, and consists of four parts only. The fixed flange A is screw-threaded to take the loose flange B, which has a long hollow boss capped at the end. The cap is provided internally with eight holes H (two only are shown). A driver C, on which are machined two short studs E and a long stud J, slides in a slot milled on the hollow boss of the fixed flange A. The short studs E engage with the holes H, and are kept in position by



The Blumfield quickly adjustable engine pulley.

the coil spring D. To adjust the pulley the long stud J, on driver C, which projects through the cap of the boss on loose flange B, is pushed inwards against the pressure of the coil spring D. This causes the short studs E to come out of engagement with the holes H, and the loose flange can be screwed in or out to the desired amount. Releasing the stud J allows the studs E to re-enter the holes H in the same or a fresh position, and the loose flange is again locked. The construction is simplicity itself, the action quite free, and a very fine adjustment can be obtained. A further advantage is that the movable parts are all covered by the hollow boss, and cannot be affected by dust and mud. The sample pulley we have examined is thoroughly well made and splendidly finished.

The makers of the Turco tyre repair outfit have sent us a much improved box containing inside repair plaster, lightning patches, French chalk, valve tubing, canvas-backed patching sheet, glass paper, a roll of insulating tape, and two sparking plug washers. A small tin of solution is fitted with a patent airtight lid, which is much better than the usual collapsable tube which sooner or later bursts with the result that the contents dry up. Further particulars can be obtained from the Union Rubber and Chemical Co., Ltd., Shaw Street, Ashton New Road, Manchester.

MOTOR BICYCLES FOR SALE.

1909 Two-speed Humber, latest Druid forks, studded tyres not done 500 miles; accept £32 10s.—Evans, furnisher, Sparkhill, Birmingham.

WOLF Lightweight, 1910, latest model, grand, magneto, spring forks, stand, tools, splendid hill-climber, quite new, one of the best lightweights; list price £55 10s., take 30 guineas; makers' guarantee.—54, Lozells Rd., Birmingham.

ARIEL, 1910, 3½h.p., latest variable gear model, magneto, free engine, handle starting, Palmer cord tyres, spring seat, lamp, horn, and spares, only ridden 300 miles; owner too nervous; cost £57 10s., with extras; better than new; take £48, genuine bargain; makers' guarantee.—217, Heathfield Rd., Handsworth, Birmingham.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

3h.p. Triumph; £14 10s.—Archer, Corn Exchange St., Cambridge.

REX Lightweight, magneto, all good as new; £18.—9 Kemball St., Ipswich.

1910 3½h.p. L.M.C. Standard M.O.V. models; immediate delivery.—Sneezum, Fore St., Ipswich.

3½h.p. Rex, good going order, £9; also 2h.p. F.N., new Dunlops, will climb anything, £7 cash.—Farmer, Leighton Buzzard.

DOUGLAS Twin Motor Cycle, 2¾h.p., magneto, Dunlop tyres, grand hill-climber, good order; £22 10s.—P. Riddelsdell, Boxford, Suffolk.

1909 Triumph, eleventh month, equal new, R.O.M. non-skids, Cowey speedometer, £10 worth extras; £40.—Stevens, Lopham, Thetford.

3h.p. Clyde, magneto, 1910 h.b.c. Amac, engine just [illegible] etc., in splendid condition; photo; £13.—Watson, Park Terrace, Cambridge.

MINERVA Twin, 4½h.p., splendid going order and condition; bargain, £16 10s., or lower power and cash.—102, Ballingdon, Sudbury, Suffolk.

3½h.p. Ariel, m.o.v., 26 wheels, new back tyre, new saddle, B100, long handle, lamp, horn, and stand; perfect working order; £15 10s.—Green, Gt. Barford Beds.

HUMBER, nearly new, 3½h.p., free engine, magneto, two speeds, only ridden few times; cost 50 guineas, accept cash £35; absolute bargain.—Garoham, 75, Christchurch St., Ipswich.

TRIUMPH, 1908, re-plated, new frame, cylinder, and piston October, 1909; any trial or examination here; spare cover, tube, new belt, valve, spring; £30.—Lloyd, 6, Cromwell St., Ipswich.

3½h.p. 1909 Humber, perfect condition, spring forks, Roc two-speed gear, free engine, handle starting, h.b. control, high tension magneto, oil pump, operated by foot, toolbag fitted to handle-bar; 30 guineas.—B. Brown, 5, Hill House Rd., Norwich.

3½h.p. Triumph, 1907, fast machine, magneto, h.b. control, new Brown and Barlow carburetter with set of jets, new lamp with separate generator, new belt, tyres good, tools, and everything complete, in perfect running order; trial; £28.—Box L2,318, *The Motor Cycle* Offices, 20, Tudor St., E.C.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

1910 Standard Triumph, just arrived.—Collier, motor agent, Abertillery.

3h.p. Ariel, good running order, new back tyres; £10.—Cook, Glyudwr, Godreaman.

MOTO-REVE, 1910, 2h.p., uncrated; cost 36 guineas, accept £34.—Ernest Jones, Pensnett, Dudley.

DOUGLAS, 1910, unused, uncrated; £37 cash, cost 38 guineas.—Joseph Wale, Pensnett, Dudley.

F.N., 2½h.p., 1910, shaft drive, not ridden 100 miles as new; £32; all accessories.—Springfield, Baglan, Glamorgan.

5h.p. Twin Lloyds Sarolea, Brown and Barlow, h.b. control, Palmer tyres; bargain, £16, or nearest offer.—Bevan, 17, Hill St., Abertillery.

BRAND New 1910 Twin Speed King Rex, overhead valves, done 150 miles, very fast; £45; exchange Matchless, Bat twin.—Rhys, Getlim Terrace, Porth.

3½h.p. Rex, Brown and Barlow, h.b. control, splendid condition; £15, push bike taken as part.—Fieldhouse, Victoria House, Penybont, Abertillery.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

3½h.p. Excelsior, good order; £11.—Barrick, care of E., Soldiers' Home, Bordon, Hants.

5-6h.p. 1909 F.N., overhauled; trial; £30.—B. Cumberland, Conegra Rd., High Wycombe.

3½h.p. Minerva, accumulator, spring forks, good going order; £9.—Davis, Twyford, Berks.

ROYAL Enfield 1910 Twin Lightweight; cost £43; new condition; £33.—Eastleigh, Cookham Rise, Berks.

The Halifax Motor Exchange

Largest Rex Dealers

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

IN STOCK

for Cash or Exchange. Don't waste time writing. Bring your machine and cash, and we will treat you with every liberality and consideration.

1910 New 5 h.p. Twin INDIAN	£57
1910 3½ h.p. REX SPEED KING	£42
1910 5 h.p. REX SPEED KING	£45
1910 3½ h.p. TOURIST REX	£48
1910 5 h.p. TOURIST REX	£51
1910 3½ h.p. TOURIST, plate clutch	£54
1910 5 h.p. Twin REX DE LUXE	£62

Brand New Twin REX DE LUXE, fitted with latest 1910 forks, magneto, carburetter, and other 1910 fittings, two speeds and free engine, and de Luxe sidecar, with detachable fittings.

SPECIAL PRICE ..... £55.

Worth £20 more and fully guaranteed.

1909 5 h.p. Twin ROC, two speeds and free engine, 2¼in. unlops, spring forks	£40 0
1909 Two-speed Twin REX DE LUXE	£39 0
1909 5 h.p. Twin REX, spring forks	£32 10
1908 5 h.p. Two-speed REX DE LUXE	£35 0
1908 Twin Tourist REX, magneto	£26 10
5½ h.p. REX DE LUXE, clutch, handle starting	£24 0
5½ h.p. Twin REX, spring forks	£16 10
1909 3½ h.p. Magneto REX	£29 10
1909 3½ h.p. REX Speed King, soiled	£32 10
1909 3½ h.p. Two-stroke REX TOURIST	£29 10
1909 3½ h.p. Two-stroke REX DE LUXE, Roc clutch, two speeds, as new	£35 10
1909 Mag. MOTOSACOCHE, Druid forks	£21 0
1908 3½ h.p. Magneto REX, spring forks	£24 10
5 h.p. Twin V.S., Truffault forks	£26 10
4 h.p. Magneto ROC, two speeds, and free engine	£29 10
2¾ h.p. PHELON AND MOORE, two-speeds	£22 10
3 h.p. BROWN, spray, Watawata	£9 10
3½ h.p. Magneto QUADRANT, spring forks	£24 0
3 h.p. SINGER, V belt, high tension magneto	£15 10
2½ h.p. ALLDAYS, light and low, spray	£11 10
3 h.p. BRADBURY, excellent order	£10 0
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
3 h.p. ARIEL, light and low, spray	£9 10
3 h.p. CLYDE, high tension magneto ignition	£14 10
2¾ h.p. KERRY, light and low, spray	£9 10
3½ h.p. REX, 22in. frame, trembler coil	£9 10
3 h.p. HUMBER, spray, powerful	£10 0
3 h.p. QUADRANT, goes well	£9 10
2¾ h.p. DE DION pattern, spray	£5 10
2½ h.p. SINGER, trembler coil	£5 5
1¾ h.p. MINERVA Lightweight, spray, goes well	£4 5

Monster List on application. Cash Offers considered.

One Brand New 3½ h.p. REX, just received from makers, and fitted with latest 1910 forks, magneto, carburetter and other 1910 fittings, tools, spares, and accessories £37 10

SUNDRIES.

New 1910 de Luxe Sidecar, detachable fittings	£5 17 6
New 1910 Rigid Art Cane Sidecar, fits right or left	£4 17 6
Motor Cycle Tubes, all sizes	5/6
New 26 × 2in. Clincher A1 Tyres	22/-
New 26 × 2in. Clipper-Reflex	17/6
New 28 × 2in. Clipper-Reflex Covers	17/6
New 28 × 2¼in. Clincher A1	21/-
New 28 × 2¼in. Reflex-Clipper Covers	17 6
Brooks Bros. Saddle	12/6
Lycett's Large Size, new	9/6
New 1910 Amac Carburetter, variable jet	27/-
New 20-amp. Fuller Accumulator	11/-
New 10-amp. Premier Accumulator, Humber size	8/6
1909 Rex Spring Forks, with springs	19/6
1908 Rex Spring Forks, with springs	16/6
Rex Pattern Handle-bars, plated	6/6
Swan Neck Seat-pillar	4/2
Matchless Forks, as new 10/6 Tee-Bee	10/6
Simplex 10/6. XL-All	10/6
Harrison Patent Back Rests	12 6
Price's Stands for 26in. wheels	5/9
Rushmore Pattern Lamps, mirror lens	15/11
Hollow Belt Drills, the best	1/6
"Forward" Adjustable Belt Fasteners	1/6
Double Twist Horns	4/6
Three-note Horns, large size	7/11
Magneto Cut-out, special type	2/6
New 1909 O.T.A.V. Voiturette, two-seater	£59 10 0
5 h.p. Two-speed Rexette, fine condition	£25 0 0

MOTOR BICYCLES FOR SALE.

2h.p. Pengeot Motor Cycle, first-class running order, French grey, very attractive; £8 10s.—H. Williams, Brown St., Salisbury.

TRIUMPH, 1910, with clutch, quite new; at Oxford; offer over £50.—Box No. 4,818, *The Motor Cycle* Offices, Coventry.

SCOTT, two-stroke, just received from makers; in stock, for immediate delivery; 55 guineas.—Stour Cycle Depot, Stourbridge.

5-6h.p. F.N., good condition; sell, or exchange with cash for 1909 Triumph; trial given and required.—Horwood, Mortimer, Berks.

1909 3½h.p. Phelon and Moore, Lucas lamp and generator, had little and careful use, spares, etc.; £49.—Morris, Holywell, Oxford.

MORRIS, Holywell, Oxford, for second-hand Triumphs at bargain prices.

5h.p. Rex, new pistons, rings, etc., R.O.M. on back, fast, powerful, and reliable; £13, or exchange offers.—King, Garfield House, Windsor.

TRIUMPH, 1909, standard model, in splendid condition, complete with lamp, horn, and tools; £35, bargain.—Withers, High St., Stourbridge.

LIGHTWEIGHT N.S.U., December, 1908, studded back, spring forks, stand, carrier, etc.; bargain, £15.—18, Hampton Park, Redland, Bristol.

F.N., 1910, shaft-driven, lightweight, guaranteed; any examination; £4 of extras, complete; £35.—Box No. L2,319, *The Motor Cycle* Offices, 20, Tudor St., E.C.

TRIUMPH, 1910, free engine model; Premier 3½h.p. twin; Moto-Reve, 2h.p., twin; all ready for immediate delivery; cash or exchange.—Stour Cycle Depot, Stourbridge.

3½h.p. Quadrant, 1908, Bosch magneto, with all spares, Clincher tyres, in good condition, machine recently overhauled; £20, or offers.—4,360, *The Motor Cycle* Offices, Coventry.

MOTO-REVE, 1909, 2h.p., twin lightweight, in good condition, engine and magneto recently overhauled by makers; £21; trial; no approval.—Bishop, 46, Atherley Rd., Southampton.

1909 4½h.p. Twin Minerva throughout, spring forks, Whittle, pedals, two accumulators, Continentals, very fast; £25, or nearest.—Woolford, The Chestnuts, Binfield, Bracknell.

BAT, 2¾h.p., De Dion, very fast and good hill-climber, just been thoroughly overhauled, spring frame, combination R.O.M. tyre on back; £15.—Roberts, Park St., Windsor.

5-6h.p. Rex, like new, splendid running order, engine perfect, new Amac carburetter, spring forks, two accumulators, studded Rom tyre; bargain, 30 guineas.—Coveney, Avondale Rd., Fleet, Hants.

3½h.p. 4-Cyl. F.N., magneto, R.O.M. back tyre, Palmer front, handle-bar control, petrol gauge, just overhauled; £ 0; will ride fifty miles to give trial.—B. Gent, 6, Britford Rd., Salisbury.

5h.p. Twin Kerry, perfect, new tyres, non-skid, spares, very powerful, £15, or exchange for lightweight twin; high-tension Simme magneto, Type S, new, never used, £3.—18, Madison Av., Bournemouth.

3½h.p. Minerva, 1907, magneto, Michelin N.S. back, Continental front (nearly new tyres), footrests, large headlight, generator, spring forks, in new condition, very little used; £20, lowest.—Moore's Motor Works, Andover.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

NYE'S.—1910 Premier, nearly new; bargain, £32.

NYE'S.—1910 Douglas, nearly new; bargain, £35.

NYE'S.—1909 Trump-Fafnir, T.T. model, Druids; £26.

NYE'S.—1908 Lightweight Rex, Bosch magneto; £15.

NYE'S.—1908 6h.p. N.S.U., Roc two speeds, Bosch magneto, good order; £28.

NYE'S.—1907 Fafnir, 3½h.p., Chater Lea; £12.

NYE'S.—1909 4-cyl. F.N., special build, 5-6h.p.; £28.

NYE'S.—1906 Ariel, 3½h.p.; £12.

NYE'S, 69, Leather Lane, Holborn, E.C. Tel.: 6299 Holborn.

TRIUMPH, 1910, new May; £45; illness; done 50.—Phillips, 326, Essex Rd.

2h.p. Minerva, good condition; £8.—Particulars, A. Thorpe, Frating, Colchester.

DE DION, 2¾h.p., tyres nearly new, good order.—17, Woodford Rd., Forest Gate, E.

TRIUMPH, 1909, perfect condition; any trial; lamp, horn, spares; £35, lowest.—Below.

DOUGLAS, 1909, 2¾h.p., as new; any trial; spares; £28; any time.—Below

HUMBER, 2¾h.p., Chater-Lea, low, splendid climber; £9.—8, Oppidans Mews, Chalk Farm.

MOTOR BICYCLES FOR SALE.

HAMPSTEAD for Bargains.—Heath Street Motor Works, 5, Heath St. Tel.: 2678, P.O.

HAMPSTEAD.—3½h.p. Quadrant, magneto, handle-bar control, splendid order; £18; all accessories.

HAMPSTEAD.—2¾h.p. vertical 1908 Minerva, splendid condition, with all accessories; £11.

HAMPSTEAD.—3½h.p. Triumph, 1909, splendid condition, with all accessories; bargain, £35.

HAMPSTEAD.—1910 2¼h.p. two-speed F.N.'s; £40; no extra for easy payments.

HAMPSTEAD.—1910 Rexes, all models in stock; no extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; exchange or gradual payments taken; no extra.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4½h.p., latest model, handle-bar control, condition splendid, with accessories; £22.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD for Moto-Reve Model A.; in stock; no waiting; no extra for easy payments.

HAMPSTEAD.—1909 3½h.p. Triumph, good condition, studded tyres; £34; all accessories.

HAMPSTEAD.—2¾h.p. Kerry, good condition, with all accessories; £10, bargain.

HAMPSTEAD.—2¾h.p. brand new Zedel, No. 6 Chater-Lea low frame, incomplete; £12 15s.

HAMPSTEAD.—3½h.p. new 1910 two-speed Phelon and Moore, in stock; £55.

HAMPSTEAD.—1910 3½h.p. two-speed Phelon and Moore, four weeks old; £50.

HAMPSTEAD for latest 1910 new 4-cyl. F.N.'s; in stock, no waiting.

HAMPSTEAD for Triumphs, in stock, new free engine models and standards; no waiting.

HAMPSTEAD.—5h.p. Vindec Special, 1908, free engine, magneto, and spring forks; £26.

HAMPSTEAD.—1910 Douglas, almost new, with all accessories; great bargain, £33.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexes, Humber, etc.; exchanges or gradual payments.—Rey, 5, Heath St. Tel.: 2678 P.O., Hampstead.

F.N., 1910, two-speed, shaft drive; £32.—Park Rd., 30, Clarence Gate, N.W.

N.S.U., 1909, 4h.p., de luxe, single-cyl.; £28.—Fisher, 6a, High St., Hampstead.

4h.p. Antoine, Chater-Lea, 18in. frame, footboards; £12.—Jermy, Frimley Green, Surrey.

CHATER-LEA 9h.p. J.A.P., new; photo; price, particulars.—Hadlow, Teynham, Kent.

F.N., 1¾h.p., lightweight, replated, re-enamelled, as new; £19.—Fisher, 6a, High St., Hampstead.

£7.—2¼h.p. Minerva, low, light, perfect; trial.—Kennett, 31, Swanscombe Rd., Chiswick.

2¾h.p. Minerva, good running order; £9, or near offer.—Kerr, 56, Kennington Oval, S.E.

1909 4½h.p. Twin Minerva, Chater, 1910 carburetter; £20.—8, Mayfield Place, Eastbourne.

2¼h.p. Bradbury; price £12; particulars on application.—Beynon, Bath Place, Worthing.

2¾h.p. Scotland Motor Cycle, good condition; bargain, £5.—Pulling, 28, Lakes Rd., Keston, Kent.

2h.p. Universal cycle, less coil and accumulator; call Thursdays.—18, Maude Rd., Camberwell.

3½h.p. Brown, 1908, splendid condition; £15.—Motorist, 47, Montague Rd., Dalston, London.

INDIAN, 5h.p., not to be distinguished from new; £50.—Fisher, 6a, High St., Hampstead.

2½h.p. Minerva, good condition, and light; £12, or near offer.—333, Stroue Rd., Manor Park.

3½h.p. F.N. Motor Cycle, sound, perfect; £10 10s.—Apply, J. Wackett, Cycle Depot, Hertford.

2h.p. Minerva, new tyres, good condition, mechanical valves; £5 10s.—Apply, 40, Brixton Hill, S.W.

LIGHTWEIGHT, 1¾h.p., F.N., £7 10s.; also Minerva, 2¼h.p., £8 10s.—227, Underhill Rd., E. Dulwich.

2¾h.p. Mitchell, sound, reliable machine, little used; £7, or best offer.—Chapman, Belgrave Rd., Dover.

BRADBURY, 2¾h.p., new tyres; splendid bargain, only £9 10s.—Armitage, Clarendon Bridge, Hyde.

F.N., 1¾h.p., geared pulley, magneto, new tyres, good condition; £16.—Philpott, Riverdale Lodge, Dorking.

3½h.p. Special Brown, 16in. frame, h.b. control, adjustable tappets and pulley; £14.—7, Tudor Rd., Upper Norwood.

2¾h.p. Mitchell, Longuemare, spring forks, footboards, running order; £5.—29, Eccles Rd., Clapham Junction.

23/- CASH

and your old carburetter receives
a Brown and Barlow or Amac Variable Jet Carburetter, latest 1910 type, complete with h.-b. control. Delivery from stock.

BARGAINS IN 1909 REXES. 1909

1909 3½ h.p. Tourist **REX** £35
1909 5-6 h.p. Twin **TOURIST** £37
1909 5 h.p. **REX DE LUXE**, two-speed.. £48
Compare these with 1910 prices.

OTHER GENUINE BARGAINS.

1908 5-6 h.p. Twin REX, Roc clutch, magneto, h.-b. control	£30	0
Twin MOTO-REVE, magneto, h.-b. control	£28	0
5 h.p. Twin VINDEC, magneto, h.-b. control	£25	0
1908 REX, magneto, black and gold	£19	0
3 h.p. SINGER, magneto, h.-b. control	£17	0
6 h.p. 1909 **N.S.U.**, two speeds, magneto, h.b. control	£44	0
3 h.p. **CLYDE**, magneto, Druid forks	£16	0
3¼ h.p. **REX**, magneto, h.b. control	£16	0
2 h.p. **QUADRANT**, very good	£6	0
5-6 h.p. Twin **PEUGEOT**, magneto, etc.	£30	0
1909 Two-speed 6 h.p. **REX DE LUXE**, only done 200 miles	£44	0
3½ h.p. **F.N.**, magneto, h.b. control	£18	0
3½ h.p. **N.S.U.**, magneto, h.b. control	£20	0
1910 3½ h.p. **REX** Tourist, new	£45	0
1910 3½ h.p. Twin **PREMIER**, new	£45	0
5-6 h.p. Twin **REX** and Sidecar	£20	0
6 h.p. Twin **REX**, Roc, two speeds	£24	0
6 h.p. Twin **REX**, spring forks, 26in. wheels	£16	10
3 h.p. **VINDEC**, magneto, h.b. control	£18	0
1909 3½ h.p. **REX**, magneto, etc.	£30	0
3½ h.p. **REX**, M.O.V., spray	£10	10
3½ h.p. 1906 **REX**, M.O.V., spring forks	£14	0
3¼ h.p. **REX**, M.O.V., vertical	£10	0
1908 **N.S.U.** Lightweight, Bosch magneto..	£19	0

FARRAR'S HALIFAX SIDECARS.

Note where the front arm grips the centre of the sidecar, and compare this design with the lob-sided and unmechanical attachment adopted by some makers.

£4 17s. 6d., complete with best tyres.
Twelve months' guarantee.

CARS AND TRICARS.

8 h.p. **BEAUFORT** Car, four-seater	£40	0
5½ h.p. **O.T.A.V.**, nearly new	£50	0
5-6 h.p. **LITETTE** Tricar, water-cooled, Roc two-speed gear, handle starting, magneto ignition, a beautiful light tricar	£35	0

ODD BARGAINS.

Bosch Plugs, post free	2	9
N.S.U. Two-speed Gear	55	-
Brooks's Broo Saddle	9	6
Dunlop Wired Covers, 28×2 and 2¼in.	12	6
6 h.p. Water-cooled Engine	£6	0 0
Tricar Radiator, good	£1	15 0
3½ h.p. Fafnir Water-cooled Engine	£4	0 0
Forecar Attachment, 26in. wheels	£3	0 0
Rex Pattern Foot Brake, new	9	6
Bowden Front Motor Brakes, new	8	6
8 h.p. Twin Rexette Engine, two speeds..	£12	0 0
Longuemare, Amac, B. and B., etc., Carburetters ..... each	5	6
Premier Magnetos, new	£2	19 6
Clincher Tubes ..... post free	6	6

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Good Motor Cycles. Cash Waiting.

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SQUARE ROAD, HALIFAX.

Telephone 919.

MOTOR BICYCLES FOR SALE.

NOBEL, 2¼h.p., h.b.c., low, good condition; £9.—10 Northview Rd., Hornsey.

4-CYL. F.N., 4½h.p., perfect, £24, worth £30.—7 Mill Lane, W. Hampstead.

4h.p. Twin, Chater-Lea, variable pulley; sound bargain £12.—27, Colonnade, Russell Square.

3½h.p. M.M.C., spring forks, new condition, £1 sidecar, £2 10s.—Guy, Buckhurst Hill.

7-9h.p. Peugeot, No. 6 Chater, B. and B. handle-b control; £19 10s.—234, High Rd., Lee.

BROWN, 2¼h.p., in good condition; £8 10s.—6 Colvestone Crescent, Dalston, London, N.E.

TRIUMPH, 3½h.p.; £20, or near; in perfect orde tyres excellent.—Roberts, 65, Peckham Rye, S.

WHITTLE'S.—F.N., 4½h.p., 4-cyl., magneto, sprin forks, nearly new, unscratched; bargain, £2

WHITTLE'S.—Bat-J.A.P., 6h.p., twin, spring fram and forks, excellent order; £22 10s.

WHITTLE'S.—F.N., 4½h.p., 4-cyl., magneto, sprin forks, fine order, extra cheap; £22 10s.

WHITTLE'S.—Rex de Luxe, 5-6h.p., twin, magnet Roe clutch, as new, unscratched; £26.

WHITTLE'S.—Bat, 3½h.p., spring frame, M.M.C engine, De Dion carburetter, practically new £18 10s.

WHITTLE'S.—Singer, 3½h.p., magneto, late mode sacrifice, £16 10s.—Whittle's Motor Exchang Earlsfield.

REX, 5h.p., twin, free engine clutch, replated an enamelled; £26.—Gardner, 6a, High St., Hamp stead.

3½h.p. Rex, accumulator, just overhauled and re-enam elled; £11.—30, Shakespeare Crescent, Manc Park, Essex.

BRADBURY, the touring machine; notice on record.—Agents, Gardner and Co., 6a, High St Hampstead.

MOTOSACOCHE, 1910, magneto, absolutely new must sell; £33, or offer.—4,816, *The Motor Cycl* Offices, Coventry.

2¾h.p. Kerry, fast, low, footboards, plating, tyre excellent condition; £9.—9, Park Rd., Collier Wood, Merton.

2½h.p. Humber, good tyres and condition, perfec order; £7.—Kingsmill, East Sheen, Loudon Rd. Sittingbourne.

BRADBURY, 3½h.p., hold a unique record in reli ability trials; £46.—Agents, Bright and Hayles Camberwell.

BRADBURY, 3½h.p.; exchanges arranged, Bright and Hayles, Camber Motor Wks., 73, Church St., Camberwell Green.

BRADBURY, 3½h.p., ball bearing engine, 87 by 87 mm.; £46.—Agents, Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., brimful of good points; £46.— Agents, Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., made by a firm of fifty years' experience in mechanism; £46.—Agents, Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., the best hill-climber of today; £46.—Agents, Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., are low built; £46.—Agents, Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., built by British labour; £46.— Agents, Bright and Hayles, Camberwell.

FIRST-CLASS Twin, 6h.p., splendid condition; offers; every day after 6.—71, Grafton St., Tottenham Court Rd., London.

3h.p. Humber, in perfect condition, tyres as new; £13.—Hereford House, Somerville Gardens, Leigh-on-Sea.

ROYAL Enfield, 3h.p. Minerva, Longuemare, excellent condition, new tyres; £10.—House, 2, Lexington St., Piccadilly.

1¾h.p. Motor Bicycle, lightweight, spray carburetter, good running order; £4 10s.—34a, Melville Rd., Walthamstow.

4½h.p. Riley and Forecar, spare wheel, to convert will separate; exchange 2¾h.p. and cash.—Ross 1a, Cowick Rd., Tooting.

PHELON and Moore, 3½h.p., two-speed, 1908, 1909 fitments, new condition; best offer over £33.—41 Ashford Rd., Cricklewood.

MOTOSACOCHE, good condition, new accumulator belt and front tyre; £14, or near offer.—Howe Church St., Rickmansworth.

4h.p., Antoine engine, 85 by 85, low frame, long handle-bars, splendid order; £15.—L. Sarcin, 48 Sedlescombe Rd., Fulham, S.W.

2¾h.p. Phœnix Cob, two speeds, Bosch, B. and B. equal new, low, and comfortable, footboards; £20.—66, London Rd., Twickenham.

N.S.U., 1908, 3½h.p., magneto, perfect condition spring forks, new Wetawata belt all accessories £22.—"Homestead," Burnell Rd., Sutton.

PHELON and Moore, 3½h.p., two-speed, magneto Rom back, just overhauled by makers; £35.— Phelon and Moore, Ltd., 12, Mortimer St., London, W

In answering these advertisements it is desirable to mention "The Motor Cycle."

THE MOTOR CYCLE

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The Future of the T.T. Race.

IT is gratifying to know that the prophecies frequently made in these columns seem likely to be fulfilled as early as 1911 by the division of the Tourist Trophy Race into two separate events—one for single cylinders and one for twins. Some writers have laid great emphasis on the fact that six of the first twelve machines were single cylinders. This is rather due to the even distribution of Fortune's favours than to any intrinsic equality. If no machines had trouble, and all the riders were equally skilful, the twins would have matters all their own way. To put this in another form: The fastest lap done by a twin was Bowen's third round—17.51; the fastest by a single was Creyton's sixth—19.14. Supposing these men, the two fastest representatives in the two classes, had been able to maintain top pace throughout, Bowen on the fastest twin would have beaten Creyton on the fastest single by over a quarter of an hour! It is obvious, therefore, that under the 1910 conditions the single is hopelessly outclassed for speed, and could only hope to snatch a win if the crack riders of twins all encountered serious trouble. Two alternatives therefore present themselves, viz.:

(i.) The capacity limit of the twins can be further reduced.

(ii.) Separate races can be organised for twins and singles.

There is now no doubt that the latter solution must commend itself. There is no great demand for small twin-cylinder engines of the dimensions used for the T.T. Such a demand may conceivably come in time. The standard 3½ h.p. touring mount may possibly in days to come be universally supplied with a twin-cylinder engine for the sake of smooth running; there are such engines on the market now, but their sales are limited. Nine times out of ten, the man who wants a twin, wants a big twin or a very small twin; and the makers of twin cylinders who excel in the T.T. Race sell very few duplicates of their T.T. engines—the engine they market is of considerably larger dimensions. Hence it may be taken as practically certain that next year the two types will compete in separate races, very possibly on separate days. The cubical capacity of the twin-cylinder engines can then be determined without any reference to the single cylinder at all, and will no doubt be largely increased.

The Course.

IN other respects the conditions require very little alteration. Competitors will no doubt take their own steps to guard against the conflagrations which occasioned so much alarm at the filling stations this year, and the A.C.U. will cancel the stupid rule which compelled the rider to pour in his own petrol, as his unsteady wrists must lead to spilling. There is much talk of a new course. A longer course is certainly desirable if the entries continue large, in order to reduce crowding, but the old course would serve admirably for two events, each with fifty entries. No Manx course can be free from perilous corners. The one real defect of the present course is its lack of a steep hill. Greg Willey is an easy climb, with only a few yards of 1 in 9 at its steepest point, and no one ever fails on it in the race unless his engine is seriously amiss or other riders impede him on a bend. If the race is to be seriously regarded as a "tourist" event a worse gradient would be of service. Quite a number of the machines entered were actually genuine tourist machines, and the sub-

stitution of ordinary forks, handle-bars, and saddles would have converted many of them into suitable mounts for the touring private owner. In other cases the machines were frankly of a racing design, drilled out wherever possible, with frames so low that the crank case only cleared the ground-line by a couple of inches. Every maker knows what strength he must put into the frame and detail fittings of a touring machine, and the race provides an admirable test for engines, carburetters, belts, tyres, magnetos, and so forth. Its touring value is not diminished by the use of racing frames, forks, bars, or saddles.

Preliminary Tests.

THE silencer test is a farce, and next year we hope to see good silencers insisted upon for the preliminary practice, and removed for the race itself. The brake test is unnecessary. No sane man would compete without good brakes, and if anyone enters with bad brakes the judges can discern in the practice spins that his machine is unsafe, and insist on its being fitted with better brakes. In conclusion, next year we hope to see two separate races, if possible on two consecutive days; an increased cylinder capacity for the twins; no brake test; no silencers in the race; the same course, unless entries increase very much, or a really difficult hill can be included; and the same set of painstaking, vigilant, and obliging officials in charge of affairs.

F. Philipp (5 h.p. two-stroke two-speed Scott), the ninth competitor in order of speed in the Tourist Trophy Race. His performance, coupled with that of Eric S. Myers, sets up a new record, as it is the first time a valveless engine has completed the T.T. course.

Incidentally, we wish those who had ill-luck the other week better fortune in 1911; we hope for a better contested race in each division, and a result in doubt up to the concluding lap.

AUSTRIAN MOTOR CLUB'S RELIABILITY TRIAL.

AN international reliability trial organised by the Austrian Motor Club took place recently in the neighbourhood of Purkersdorf, near Vienna. It was not so successful as those held in former years, as the weather on the day of the trials was dreadful—it poured with rain, and was bitterly cold. Owing to the bad weather it was decided to go over the course once, instead of the three times originally intended, so that it was only fifty-four kilometres in length. This was, however, a more difficult test than the original would have been in good weather. During the trial a speed test of three kilometres long was held. In judging the final results, the regularity of running during the whole course was taken into consideration, as well as the number of marks gained in the speed trial. Final classification: 1, A. Müllner (5½ h.p. Rössler and Jauernigg); 2, O. Wolf (2.9 h.p. Puch); 3, F. Ahlgrimm (6 h.p. Puch).

Grotsch (6-7 h.p. Twin-cylinder Puch and Sidecar) crossing the starting line.

W. Bliding (5½ h.p. Laurin and Klement). Note curious position of the passenger to lessen wind resistance.

The winners in the respective classes were: Class I. (lightweights), Alois Wutte (1¾ h.p. N.S.U.); Class II., Otto Wolf (2.9 h.p. Puch); Class III., Ottokar Mazanek (3½ h.p. Niesner); Class IV., Anton Müllner (5½ h.p. Rössler and Jauernigg); Class V., Fritz Ahlgrimm (6-7 h.p. Puch).

A Round of the T.T. Course at Speed.

NOBODY who has yet to visit the Isle of Man can conceive how exacting is the task which faces the racing man who would win a T.T. Race. Nobody who has not "blinded" round it in the early morning when the roads are free can understand what address and dash are required to register even a twenty minute lap, though this year Charlie Collier's *slowest* lap was reeled off in 19.34 minutes. Ask Hedstrom, the veteran designer of the Red Indians, what he thinks of the course. In case you don't know him, I will try to paint its difficulties. St. John's, the official starting point, is a hamlet on a broad road, less than a mile from the south-east corner of the triangle, and a broad, straight, pot-holey highway conducts you to the ill-famed right-angle of Ballacraine. Here a large, square, white-walled public-house shrouds the corner from you. You cannot estimate its severity; you cannot see whether Bowen, or some other daring rider, is recumbent in mid-track behind the wall with his machine pummelling him. You jam on your brakes, lift your valve, and twist round. Can you ever do it? The kindly wooden banking seems too far round the bend to help you—straight ahead is a cruel, gnarled wall, the bloodstains scarce washed off. By an effort you twist your front wheel, and with a bump you are up the banking a couple of feet. Lying well over, you swirl off it, and, hey presto! you find the deceptive road is strongly on the rise, and your engine knocks—it was here the Colliers' automatic A.M.A.C. carburetters came in very handy.

Ballig Bridge.

You jab your air lever back a notch or so, and with clanking piston gather pace up the ascent. Just as you rejoice to hear your exhausts merge again in indistinguishable roar, Ballig Bridge leaps up under you—loathly little hump set on the skew—it hurls you five yards forward and across the road, over paving stones set at the cottage doors, and now, as your jumping heart slows down a few r.p.m., you face a particularly nasty patch of going. The road is narrow, hemmed in with ruthless walls, and has lost all sense of rectitude. It is an elongated spiral. Arm Hackenschmidt and Sandow each with a huge pair of gas pliers, and let them pull out a giant exhaust valve spring till it has something of straightness—such is the road to Glen Helen. There are no genuine corners, but you are shaving stonewalled curves all the time. One or two wheel tracks in the race go within *four inches* of the low walls; were you squatted there to watch with dangling heels you would spill Collier and Jack Marshall and two or three more. So to Glen Helen, where the capricious road gives a sharp breathless twist to the left, then right again, then back left, then with the last and sharpest wrench to the right. Close on your back wheel thunder five or six more projectiles, breathing flame—take an inch more room than you can claim, and they will smash into you.

Then the grade straightens up, and a lower geared machine nips past you at 45; over the undulating plateau you bound, losing yards on him at every explosion, till the mad swoop down to Kirk Michael drops away beneath you—twenty-five feet wide, fenced by high hedges, curling down in long gentle wreaths. 50—you are pulling back the man who passed you on the hill—60—you have him—70—you leave him standing, but with a rush and a thunderous roar Charlie Collier's front wheel is up with you. Aha! the bottom—two tiny rises, which betoken that Kirk Michael is near you; you signal "Next lap" you will stop for petrol; Collier, with consummate nerve, delays slowing till the bend is almost under his wheel, and leaves you for ever; you slide cautiously round with several others in a crackling, spluttering string, as cramped wrists refuse wholly to lift the valve against its 40 lbs. spring. Steady here—this was where poor Alan Woodman met his terrible fall—then six miles of broad hedgerowed going, up and down in little undulating dips, with only one corner, and that the terrible Devil's Elbow, too dangerous to be dangerous at all, until after another three miles of winding road

The Very Nastiest Piece of the Whole Course

is reached, the wicked one, two, three corners in the streets of Peel—a regular beast one of them; across a street into another street a trifle out of register with the first; though the gutters are filled with hard-

P. Platt, the fastest rider in Class I. of the A.C.U. Snaefell hill-climb, riding a 1910 model 3½ h.p. Bradbury.

A Round of the T.T. Course at Speed.—

stamped metal, the slightest error means mounting the kerb, with a sickening jolt and long odds on a skid over the flags. Then a lovely mile—broad, dead straight, and not too bumpy—till you pass under the railway bridge, and strike two bunkers you would never have called bunkers till you tried to snatch seconds through them—the first another skew bridge with stiff stone parapets, the second a corner, heaven save the mark, up into St. John's. Why, the road looked straight here last night, so long and gentle is the bend, but as you tear up on full throttle you scrape the bank on the extreme right, and should you fall, that roar behind you means you will be knocked into mincemeat before you realise you are over. This is no sport for cowards or fools, gentlemen! IXION.

"IFS" OVERHEARD IN THE ISLE OF MAN.

If the island were only big enough to hold Bowen and his Bat!

If the Indians' tyres had stood up!

If the Colliers will ever make a mistake!

If Creyton had funked mounting his blazing machine at Kirk Michael!

If Oberländer's belt hadn't broken!

If young B. Jones had kept going!

If attendants were allowed to do the refilling!

If Wood hadn't come a purler in the rink race!

If J. R. Nisbet wasn't a champion clerk of the course!

If the roads had been greasy!

If the Scotts didn't hold the road like postage stamps!

If Bosch Bennett wasn't very much in evidence!

If Mackay had been two yards nearer Bowen when the latter's frame broke!

If poor Woodman's tyre hadn't burst!

If Marshall's tube wasn't in rags after his spill on Snaefell!

If the Rex connecting rods weren't "holy" terrors!

If Bowen ever funked a corner!

If Adamson's corner work isn't the real thing!

If Lister Cooper ain't a coming man!

If the police hadn't cleared the road when Bashall became a pillar of fire!

If *The Motor Cycle* "maritime office" wasn't great!

If "Pa" Applebee wasn't deaf, would he have used twenty-four belt fasteners!

If Chase didn't ride as neatly as ever!

If the Zenith didn't mop up the precipice from Sulby to the Bungalow!

If the Humber aeroplane engine isn't first cousin to a bullet!

If Slaughter hadn't got the fastest Ariel ever seen!

If Bentley wouldn't make a bucking broncho buster!

If nobody had trouble, who would win!

If there were Ballacraine bends on Brooklands!

If racing through Peel isn't the limit!

If seagulls know more about aviation than Paulhan!

If there were no barnacles on the Peel coast, how much more skin would a certain End-to-end record-breaker possess!

If Schulte was smiling on Thursday night!

If Hedstrom fancied the course!

If Wells holds the record for replenishing an oil tank!

If anybody can teach the Colliers anything!

If Mrs. Aston would not be a valuable asset at a bazaar!

If we are popular in the Isle of Man!

If there will be separate races for twins and singles next year!

If there will be a new course!

If a 40 h.p. car wanted any pushing out of the Sefton garage!

If the Rom car wasn't a naughty little projectile!

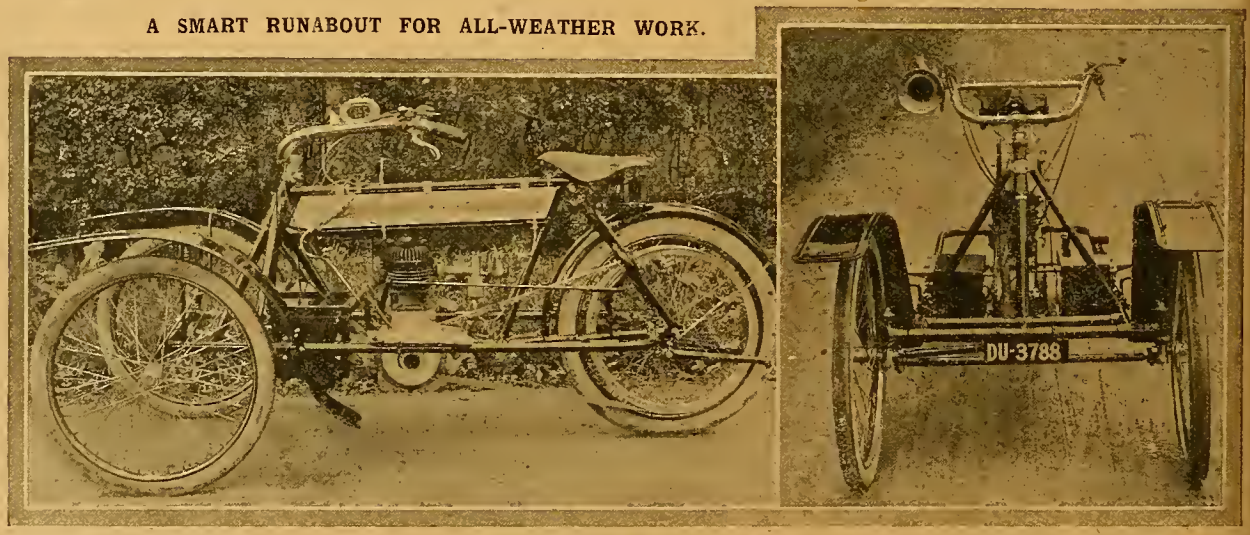
If Holroyd didn't bulk large against the sky line up Snaefell!

If some wag hadn't put blotting paper between the magneto contacts of Boileau's Indian and Brooker's Triumph!

If any visitors had to do some pushing out of Douglas towards the Bungalow!

If the lightweights ever needed more than "L.P.A." up some of the Manx precipices!

A SMART RUNABOUT FOR ALL-WEATHER WORK.



The handy three-wheeler illustrated has been designed and built to the order of Mr. J. G. Jelley, Coventry. The engine is a 3½ h.p. White and Poppe, provided with a cone clutch, and the machine complete weighs but 200 lbs. The tyres are 26in. × 2¼in. Three Spiras non-skids.

The Automobile Engineer is the title of a new sixpenny monthly which has just made its appearance, and is published at 19-21, Great Queen Street, W.C. Its aims and objects are to deal with all technical and scientific questions concerning the design and construction of self-propelled vehicles. Among the contents of the first number is an article on "Universal Joints," which will probably be of interest to motor cyclists, and particularly those engaged in the construction of motor cycles, universal joints being used on more than one make of motor bicycle. Carburation is an item which all are anxious to know more about, and carburetters are exhaustively treated in a special article, which points out where efforts for future improvement should be made

A New Automatic Carburetter.

A VARIABLE CHOKE TUBE.

ONE of the most interesting carburetters we have ever seen is that recently introduced by the F.N. Co., which embodies a number of novel and highly ingenious features. Fig. 1 gives a perspective view of the carburetter as a whole, and shows the position of the float chamber, throttle lever, and inlet pipe union. The mixing chamber is cylindrical and contains a rotating sleeve throttle, which in addition to the functions dealt with later on controls the admission of air to the mixture through two ports. The situation of these latter is more clearly shown in fig. 2. That on the left hand side admits cold air, whilst the right hand one is furnished with a gauze-covered funnel which abuts on the cylinder head and provides warm air.

The throttle sleeve is illustrated in fig. 3, which for the sake of clearness shows it the wrong way up. When in the position of full opening the heart-shaped hole in the sleeve coincides with the outlet port in the top of the mixing chamber, the sleeve passing between the cylinder wall and the small castellated-ended tube, the use of which will be described. For the control of the air a portion of the sleeve is cut away in such a manner that when the throttle valve is nearly shut all the air supply is drawn from the warm air port; then as the valve is gradually opened the cold air supply comes into use, until at full throttle only cold air is drawn in. It may be mentioned that the area of cold air port is considerably larger than that of the hot air port.

A variable choke tube practically makes a carburetter automatic. The F.N. Co. have set about achieving this laudable end in the following manner. Mounted to the cover plate through which the throttle valve spindle passes are a couple of cylindrical rollers which run the entire length of the mixing chamber, and butt up against its walls at either end. These rollers are geared together by means of teeth milled in them, and are cut away in a very peculiar manner, which may be described as a double compound helical groove. From a middle point along the roller's length a right-handed thread and a left-handed thread are marked off and pass some threequarters of the distance round the circumference of the roller. Between these two diverging lines a semi-circular groove is machined, which as the lines get further apart becomes not only wider but deeper. Fig. 4 shows the appearance of the two grooved rollers which are meshed with one another symmetrically, so that when they roll together the depth of the grooves immediately on either side of the line of contact is the same. Since each groove is semi-circular it will be seen that there is between the rollers a circular gap which can be increased or decreased by rolling the rollers one way or the other.

In the choke tube thus formed is placed the jet, which when the rollers are in one extreme position practically fills the gap.

One of the rollers is fixed to a spindle which runs loose in bearings at each end, whilst the other is attached by a

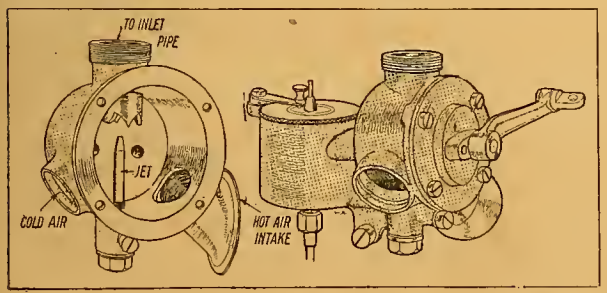


Fig. 2.—Interior of the mixing chamber with throttle sleeve removed

Fig. 1.—General view of the new F.N. automatic carburetter.

grub-screw to the spindle shown inside the throttle sleeve in fig. 3. This spindle carries at its rear end a small pinion which meshes with a similar-sized pinion mounted on the throttle sleeve spindle.

In this way the opening of the throttle is caused to actuate the rollers, with the result that as the throttle is opened the area of the choke tube is increased, and *vice versâ*. The amount of choke tube area compared to the throttle opening can be regulated to any desired degree by slipping the driving roller upon its shaft. The rear plate of the throttle sleeve is slotted to let the roller spindles pass through, as

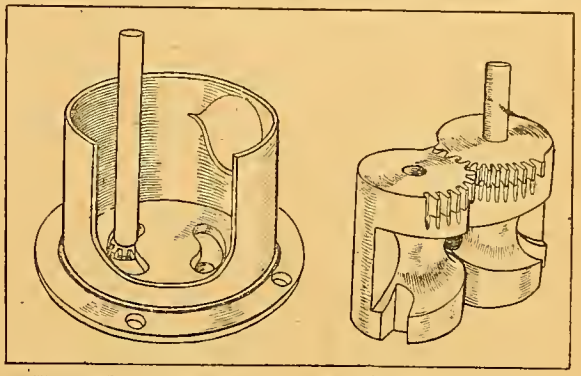


Fig. 3.—The throttle sleeve showing roller spindle and gear, also air and gas shutters.

Fig. 4.—The two peculiarly shaped geared rollers.

shown in fig. 3, and only a certain amount of motion in the rollers is therefore possible.

The rollers when placed side by side are a snug fit inside the throttle sleeve, and the cutting away is such that in any position there is a sufficiency of unbroken surface of the rollers in contact with the sleeve wall to provide a practically perfect air-tight joint.

To render the continuation of the choke tube above the rollers as symmetrical as possible, and thus prevent the mixture being obstructed by any sharp corners, the small castellated tube shown in fig. 2 is provided, and is secured to the end wall of the mixing chamber by means of a stud and set-pin. The castellations make as near a fit as is possible with the peculiar contour of the grooved rollers.

The lid of the float chamber is made extremely easy to detach, as is also the jet, and all parts of the instrument are readily accessible. Throughout it is of gun-metal, dull nickel-plated.

After Mr. Harry G. Bell had explained the working of the carburetter, he kindly placed at our disposal one of the latest four-cylinder machines for a short run in the London traffic. The machine started very easily, and on closing the throttle it was found that it would run extremely slowly with all four cylinders firing with absolute regularity. Driving the machine through Richmond Park, there was no difficulty whatever in keeping down to ten miles an hour, and, in fact, so slow a speed could be maintained that it required a good deal of handle-bar movement to balance the machine. In action and general principle the carburetter strongly resembles one which is very largely used on motor cars, and it has the same peculiarity, that very sudden opening of the throttle causes the engine to cease to fire through too much air being drawn in. This is merely mentioned as an interesting fact, as it in no way impairs the running of the engine or interferes with the working of the carburetter. All that is necessary, and, in fact, desirable, is to open the throttle fairly gradually. The new four-cylinder F.N. machine is a decided advance upon anything previously turned out by the firm.

One by one the large cycle manufacturers are taking an interest in the motor cycle question, the latest firm to succumb to the powerful influence of the petrol-propelled two-wheeler being the Rudge-Whitworth, Ltd., Coventry. They inform us they have not yet decided to market a motor bicycle, but they have been examining the subject from every point of view for some time past, and should they come to a definite decision as a result of such enquiries they will be in readiness for the 1911 season. The Olympia Show in November next will possibly see the first public appearance of the Rudge-Whitworth motor bicycle.

A Week in the Isle of Man.

THE year offers the keen motor cyclist few more pleasant and petrolly times than the T.T. week in the Isle of Man, and when I first sampled its savour last year I bound myself by a vow never again to be voluntarily absent. It is true that the getting there is not all top gear work. I could not ride to Liverpool from my obscure residence in half a day, and, time being short, I plead guilty to having trained it, trusty Triumph and all. Here come valuable tips—"Road Rider" please note! I did not know the "advance luggage" system worked across the water, so I posted my personal baggage; returning, I forgot to post it, and boarded the steamer at Douglas with two large brown paper parcels, which split, and strewed my belongings in the scuppers.

Secondly, I took my machine with me as luggage, for economy's sake—7s. 6d. By the time I had tipped six porters at railway stations, paid one hefty son of Anak to push it across Liverpool, two ditto to drop it into the hold at Prince's landing stage, three ditto to hoike it out at Douglas, I was running short of small change. On the return journey I took it to the parcels office, and for 12s. 6d. go it freighted to Northampton at company's risk without ever seeing it *en route*. If it hadn't been for those accursed brown paper parcels, "orl would have been peas."

Picturesque Peel.

Now to our motors. I put up at the Sefton in Douglas. Next year I shall find an hotel on the course. Peel, for instance, is a charming place, picturesque buildings, and about the bluest thing in bays. Douglas is too trippersome, and those ten bumpy miles which have to be traversed before the course is reached come amiss at 3.30 a.m., as one rushes hungrily out to see the wily Colliers get in their early practice before the course gets crowded. Not but what the scenery is magnificent, indeed at its best when sun and mountain struggle with mist and wind; but I am not of that poetic temperament which can appreciate scenery when the beard is unshaven, and ham and eggs are still distant possibilities. Timing the men round in the wee sma' hours is aggravating. Nearly all of them are lying dark. The cutest get their rounds done before the average journalist has had time to do more than abuse his alarum. Others stop and smoke a cigarette in some inaccessible corner half way round lest their form should be exposed; many more seem to have long *pannes* somewhere or other; and one or two are back again in such unbelievable haste that one wonders if they have discovered a short cut reducing a lap to seven miles or so. Most of the early birds take up their stand at Ballacraine Corner in an unholy thirst for gore; but, as a matter of fact, the rash rushes seldom come until a few delirious laps have warmed a man's blood—Ballacraine is very forbidding when one is fresh from bed, and most took it very gingerly.

Practice over, we made for some remote beauty spot where we breakfasted, much to the profit of the good host at the Sefton, whom we paid for many a meal we never ate. Never did breakfasts taste so good as those dished up at some seashore hotel or glen farmhouse, to vanish before an appetite quickened by thirty miles of open road and five hours mist and sun. Then the day was free for exploration. First of all, the main roads are traversed—low the speed, for every landscape clamours for admiration in the beautiful island, and the dust forbids scrapping when riding in company; the Manx dust is of a peculiarly fine floury consistency, and it hangs in a stifling pall over the road for quite a long period after two or three rapid riders have torn past; even so, it is a long way better than the Manx grease, which, happily, was not in evidence during this week of cloudless sun. The coast road alone totals up to some fifty miles, of which not a yard ought to be rushed, save where gradients and the want of a variable gear compel speed.

A Host of Byways.

Inland there are dozens of cunning little glens, gemmed with gorse and tender larch foliage, foiled by rugged, barren moor above. When these obvious routes have been covered there remain a devious host of byways, each with its own gorgeous glories. To these last I devoted much attention in the idea that they would afford a good imitation of colonial riding. Often such a road jumps up by abrupt steps from terrace to terrace. Of surface there is none, except that when a hole gets so deep that a pony might be lost in it they send along a cartload of boulders to level things up.

The Day of the Race.

Gentle experiences of this sort lead one calmly on to the great race itself. The course is a triangle, and there are very few paths inside the triangle. Last year I hung about the southern corner, where, with the help of a good motor cycle and a knowledge of byroads, one may wander along some six miles of the track and watch the riders at different points. This year, for variety's sake, I resolved to go to Kirk Michael corner. The attractions here are threefold: First, there is the terrible V corner—the worst on the whole lap; secondly, there is a replenishment depot, and no crowd to hamper one's observations; and thirdly, one can wander safely up the long slope towards the top of Creg Willey's, and see the human projectiles descending at speeds which certainly touch eighty miles an hour now and then. The depot was situated in a field with a house and garden adjacent, where an excellent lunch was provided for the handful of officials—so excellent that a well-known Coventry motorist presently wearying of the rattlesome procession outside, retired within, and shunted rabbit and

A Week in the Isle of Man.—

trifle and jelly by the cartload, totally oblivious to the strenuous happenings over the wall. Nisbet, on his French-grey Humber, was soon round to close the course, and ere long the crackling procession began, continuing without intermission for five mortal hours, though with a difference. One might say the current of riders retained its voltage, but with a vastly reduced ampèrage, as the day wore on and, many disappearing, the survivors became strung out.

In 1909 Lee Evans and Harry Collier fought a ding-dong battle almost up to the post, while for many laps Marshall was very, very dangerous, and one or two others were not done with for certain. This year the whole Indian team were early out of the running through no fault of machines or riders, and the Bats, on whom their mantle fell, did not last halfway.

The No-trouble Colliers.

After that it was evident that only serious trouble could oust the two Colliers, and we know that the Colliers simply do not have trouble. Nobody can beat them at corner work, nobody can beat them at tuning. Hence to ensure victory they have only to make a non-stop by one of the family a dead sure certainty, and this they can be relied upon to do. After six laps the only ghost of a chance possessed by anybody else lay in both the Colliers having a long stoppage—and that would have been a miracle, for they don't have accidents, and they eliminate luck by thorough and clever testing of every single detail on their machines. Hence before half time we awarded the race to the Matchless, and our subsequent interest depended merely on any exciting incidents with which the gods might favour us. Nor were the gods particularly kind. Poor Oberländer put up a great race till his belt pulled through just opposite us, and broke his stand clip—a mishap which involved lengthy difficulties, and destroyed his chances even if his engine had not failed him later. Altogether we were very glad when Nisbet's Humber car at last trickled slowly down the hill, and gave us the signal that such of us as had machines which could go might blind gleefully round into St. John's once more.

The final ride from St. John's back into Douglas is unpleasantly memorable. The constant stream of vehicles shrouded the entire road in a choking wreath of horrible white dust, and the driving of certain visitors was distinctly lurid. One sportsman on a powerful car took the tricky turn over Quarter Bridge at about 50 m.p.h. just as I negotiated it, and next time we meet he and I will have "wurruds."

The remaining happenings of a glorious week partook of the nature of an anti-climax. We went to the rink, and saw divers racing men reproduce their earlier corner work on roller skates, much to the terror of the regular *habitués*—saw, too, I am sorry to say, a few motor cyclists disgrace our whole body by extremely unseemly conduct. Then to the big dancing hall of the Palace, where a dense mass cheered everybody impartially, and drowned Collier's maiden speech.

The next day many visitors on touring machines found fresh arguments in favour of two-speed gears as they tried to climb Snaefell from the easy (or Douglas) side. I saw quite ten machines of class makes fail ignobly on this very trifling ascent. Up the long slope of the other side those who had lost reputation on the Thursday mostly regained somewhat on the Friday. Bentley, in particular, exhibited what the racing Indians can do when their tyres stand up, and Jack Marshall would almost certainly have recorded the very

TOURIST TROPHY RACE.

C. R. Collier passing the finishing post a winner in 3 hours 7 mins. 24 sec.—average speed 50·7 m.p.h.

Leaving Ballacraine, there is a gradual and steady rise which partly accounts for the competitors rounding the corner at a fast rate of speed.

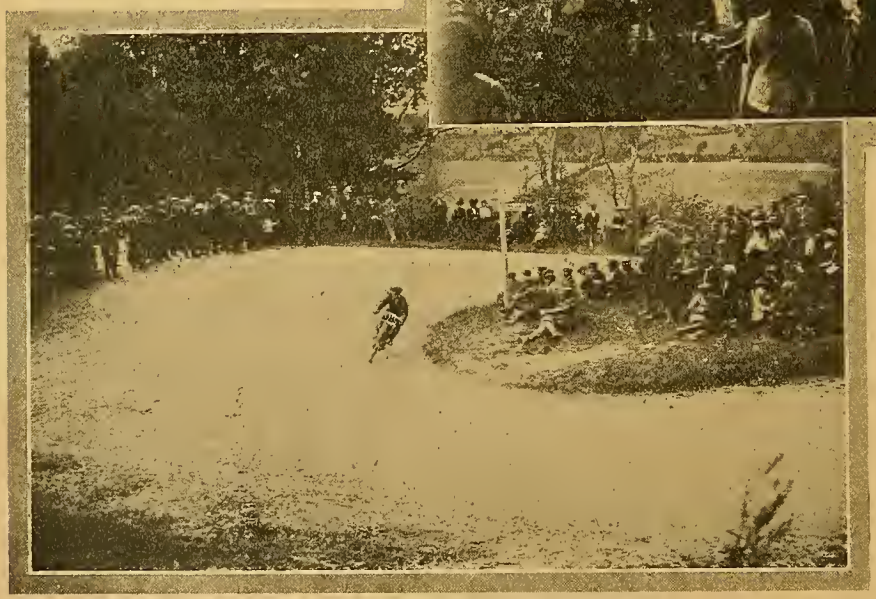
fastest time of the whole bunch if his inner tube had not chewed itself into sixteen little pieces. But for

THE SNAEFELL MOUNTAIN HILL-CLIMB IN THE ISLE OF MAN.
Three aspects of the hairpin bend—a popular point of vantage.

F. W. Barnes (3½ h.p. Zenith-Gradua), who derived much benefit from the use of his variable gear.

style in hill-climbing there is nothing to touch the Scott. It may be beaten for speed, but for *pretty* work on a tricky hill there is nothing to touch the two-stroke. The four-stroke can mop up twenty per cent.

R. Lord (3½ h.p. Rex) heading for the steep gradient leading to the Goose Neck.



Half way round the hairpin bend. It will be observed that this competitor has still to turn his front wheel at right angles to its present direction of travel.

grades as if they were level, but put it at a hairpin when five miles of previous climbing have hotted it up a bit, and it will clank a trifle as its head comes round into the straight again, and its valve is dropped once more. But the two-stroke—no rattle, no fuss, no "you-listen-to-me," no dexterous wrestling by an agile driver. Just a sweet silent swoop upwards, slowing down evenly and smoothly for the bend, no spitting or ceasing of the purr as the wicked twist in the white tape folds down towards it, no clank or rattle or labour as the guarding banks loom up straight against the horizon. Just a gentle curbing of the purr for fifty yards, then a modulated lowering of its note, then pf!—and she's up! The Scotts have now got what they have been looking for—a great public test of reliability with banners flying. We knew they were easily started, we knew they could climb anything, and now we hope they are going to sell like hot cakes.

About the return journey—I spare you there! There were ninety motor cycles on board, and ten cars. The boat got in at 1.40 p.m., our train left at two. We moored outside another steamer, instead of against the quay. He who must be obeyed sang out, "Land only passengers and mails." Under such circumstances blessed is the man who has sent his machine home on its own. Such was I.

B. H. DAVIES.

TOURIST TROPHY MODELS.

A SPECIAL SINGLE-CYLINDER HUMBER.

ALTHOUGH it did not figure very prominently in the actual race, there is little doubt that there was no machine in the Isle of Man which created more comment than the 3½ h.p. Tourist Trophy Humber—an entirely new model, constructed and designed upon highly original and instructive lines.

Starting with the engine, this is a single-cylinder with a bore and stroke of 85 mm. by 88 mm. Here, however, its resemblance to standard practice ends, for in scarcely any other particular does it follow the lines of any other motor bicycle engine. It is, in fact, made practically in accordance with aeronautical practice, and shares several original points with the Humber aero-motor. The cylinder is steel, and is provided with radiating fins, so thin that by drawing one's nail across them one can produce practically a complete octave scale. These fins are greater in diameter at the top than at the bottom of the cylinder.

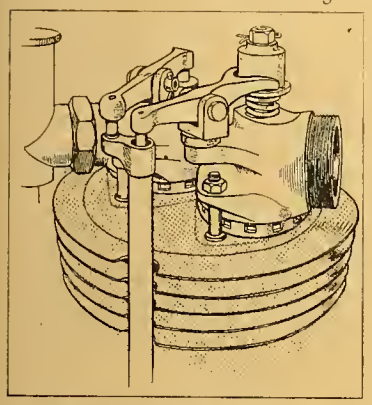


Fig. 1.—The combustion head fitted with overhead valves, and concentric tappet rods. The radiating fins decrease in diameter towards the base. The sparking plug is behind the exhaust valve casing.

Both inlet and exhaust valves are situated in the cylinder head, where they are carried in separate valve chests secured to the cylinder in a special manner. The valves are mechanically operated by overhead rockers, which are actuated by tappet rods, one of which is tubular and has the other working inside it (see fig. 1).

The above valve arrangement necessitates the cam construction shown in fig. 2. The cams are in one piece with the half-time pinion, the outer pair operating the inlet and the middle one the exhaust valve. The rocking arms are also shown in fig. 2, together with the exhaust valve lifting device. The exhaust rocking arm takes the form of a bell crank, the short arm of which can be engaged by a crank attached to the spindle upon which the rocking arms are pivoted. The timing gear is, of course, enclosed in an oil-tight aluminium case, and through this the spindle projects and terminates in a squared portion to which the exhaust valve-lifting lever is secured.

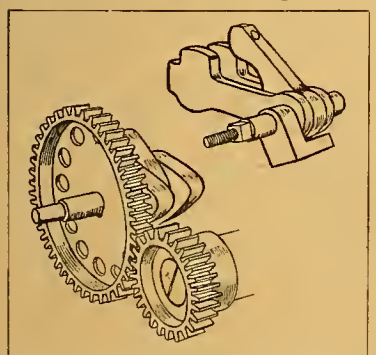


Fig. 2.—The arrangement of the timing gear, cams, rocking levers and exhaust valve lifter on the T.T. Humber.

The magneto is driven by a train of pinions, and is secured in a horizontal position to the back of the crank chamber behind the engine, whence it is not only extremely accessible and well protected from mud and dust, but is also very quickly removable, since it is held in position by a steel strap and buckle similar to that employed in car practice. Fig. 3 illustrates this and also the foot-rest bar and foot brake.

The lubrication system is carried out in a most thorough manner, and embodies several highly ingenious and effective devices. Fig. 4 shows how the crank chamber is provided with a large sump capable of holding sufficient oil for a run of several hundred miles. A small pump, consisting of a couple of pinions running in mesh with one another and connected to an extension of the spindle of the half-time wheel, draws oil from the sump and delivers it to a punt-shaped trough in which the flywheels dip and fling oil on to the piston, cylinder, big-end, and gudgeon pin. The trough is hinged at one end, whilst at the other it rests upon an eccentrically-mounted spindle, which can be turned and the trough raised or lowered. In this way the amount of oil splashed up by the flywheels may be regulated to any desired degree, so that very economical and efficient lubrication can be obtained. At its rear end the sump is furnished with a glass window, through which the level of the oil can be determined.

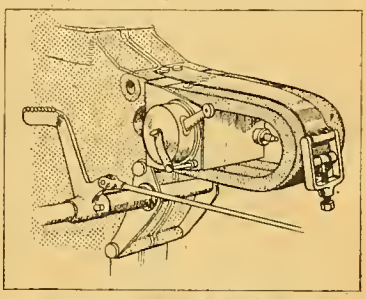


Fig. 3.—The magneto is fixed in a horizontal position behind the crank case and secured by a steel strap and buckle rendering it easily removable.

Fig. 5 shows the petrol and auxiliary oil tank and hand pump. The latter delivers oil to the sump *viâ* the timing gear box, and is used as occasion demands, when, for instance, very hilly country is being traversed. The petrol tank delivers fuel to a Brown and Barlow carburetter coupled close up to the inlet valve chest, as indicated in fig. 1.

Fig. 5 also illustrates the unique construction of the top frame member. This latter is composed of two D section tubes which are spread out and bent downwards at the rear of the tank to form the rear fork. The down tube forming the seat-pillar passes through a cross-piece which is brazed to these D tubes. This construction is at once light, extremely strong, and pleasing in appearance, and it will be a matter for some surprise if it does not cause other designers to realise that frame construction is a point which has been left undeveloped much too long.

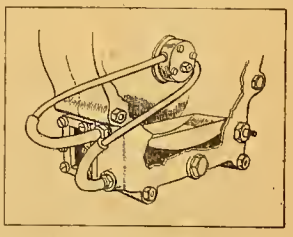


Fig. 4.—Lubrication is by means of a sump in the crank-case, an adjustable trough and a gear pump.

As might be expected, the reciprocating parts of the engine are remarkably light. We give a sketch (fig. 6) of the piston, which is cut out of a solid billet

Tourist Trophy Models.—

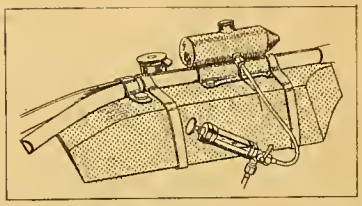


Fig. 5.—The divided top member constructed of D tubing, also showing the petrol and auxiliary lubricating oil tanks.

of steel, and is machined inside and out until in no place is there much more than one-sixteenth of an inch of metal. A single ring at the top is employed, and it will be noticed that the gudgeon pin, which is fastened to one side of the piston only, is provided with right and left-hand oil grooves.

Chain drive is employed, and for this purpose a ball-bearing countershaft is mounted upon the rear stays, and a chain from a pinion on the engine-shaft transmits the power to the counter-shaft, which in turn transmits the motion to the rear wheel. The counter-shaft is furnished with slip washers, which absorb a certain amount of the "kick" of the engine at low speeds, and so relieve the chain of a good deal of strain. These washers are adjustable to any extent.

The above description by no means exhausts the interesting features of the machine, but for the present space forbids a longer article. No doubt the machine will be subjected to slight modification, and as it will probably become a popular type, we may have an opportunity of dealing with it further in the near future.

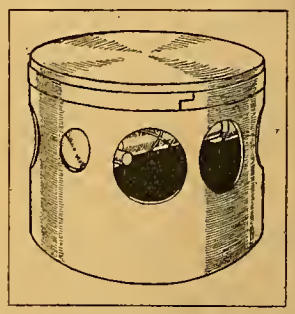


Fig. 6.—The T.T. Humber has a steel piston machined from a solid bar of metal.

BRADFORD M.C.C. OPEN HILL-CLIMB.

THE next important event in the North is the open hill-climbing competition promoted by the Bradford M.C.C., to be held on Saturday, the 25th inst., at Cockshoot Lane, Skipton, commencing at 2 p.m.

Eight classes have been included on the programme as follows:

Class 1.—For lightweight machines, not to exceed 120 lbs. in weight.

Class 2.—For single-cylinder motor cycles, not exceeding 517 c.c.

Class 3.—For machines with multi-cylinders, not exceeding 750 c.c.

Class 4.—Variable gear class for single-cylinders, not exceeding 517 c.c.

Class 5.—Variable gear class for multi-cylinders, not exceeding 750 c.c. In classes 4 and 5, competitors to start from a standing start on lowest gear, with the rider well seated in the saddle. To bring road wheels to rest anywhere between two indicated points fifteen yards apart, and restart as before. No assistance allowed.

The above classes are for standard pattern machines.

Class 6.—For single-cylinder racing machines, not exceeding 500 c.c.

Class 7.—For twin-cylinder racing machines, not exceeding 670 c.c.

Class 8.—Open to any motor bicycle, weight of machine unlimited, capacity of engine not to exceed 1,000 c.c.

Every machine must be fitted with an efficient silencer. The weight of every rider must not be below the minimum of 154 lbs. A competitor weighing more than the minimum fixed may not strip his machine in standard classes to compensate for the difference.

Stripped machines will be allowed in the racing classes.

The Awards.—A handsome trophy, generously presented by Mr. Eric S. Myers, and taking the form of a silver cup, to be won and held for twelve months by the rider making the fastest ascent of the day. A special gold medal to the value of two guineas to be presented along with the trophy. Should any one competitor win the trophy three times in succession the same shall become his private property.

Gold medals awarded to each class winner; silver and bronze medals will be awarded to second and third in any class having not less than ten entries.

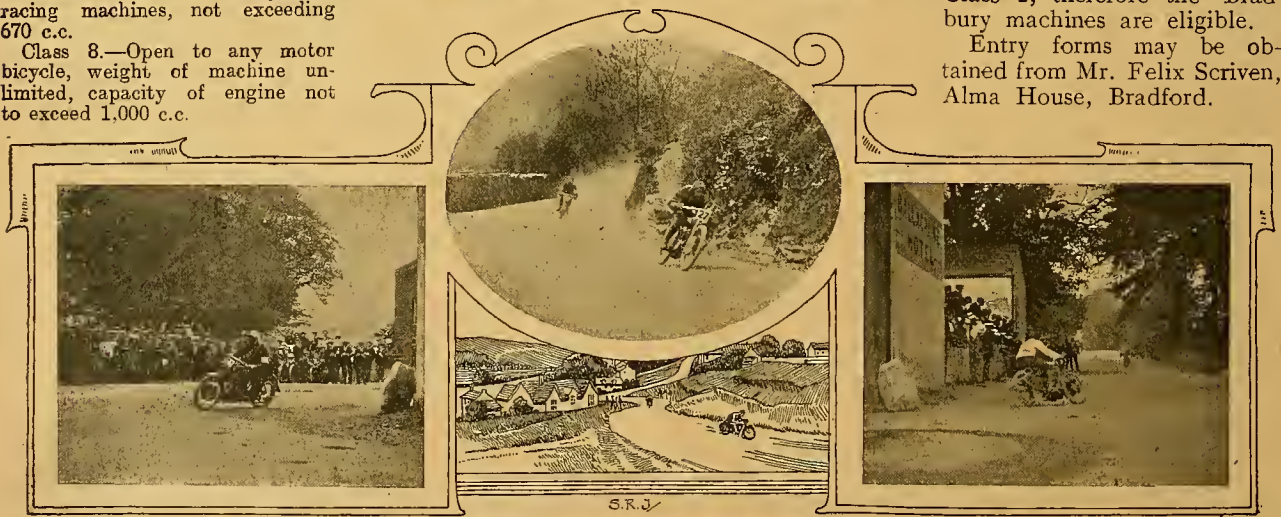
It is hoped to announce further special prizes at a later date.

Every machine entered in Classes 1, 2, 3, 4, and 5 must be in full touring trim, fitted with horn, toolbag, tools, efficient metal mudguards and silencer, and be absolutely standard in every respect. Tourist Trophy models must enter the racing classes. A committee of scrutineers will inspect and classify the machines before the commencement of the event.

It will be observed that single-cylinder machines up to 517 c.c. will be admitted in Class 2, therefore the Bradbury machines are eligible.

Entry forms may be obtained from Mr. Felix Scriven, Alma House, Bradford.

INTERNATIONAL TOURIST TROPHY RACE.



N. F. Holder (5 h.p. Blumfield) rounding the corner at Ballacraine.

J. R. Alexander (5 h.p. Indian) and H. Lister Cooper (3½ h.p. Triumph) at speed in Glen Helen.

Another view of Ballacraine Corner, depicting the rise confronting a competitor immediately he has negotiated the turn.

HERTS COUNTY A.C. SELECTION TRIALS.

An eliminating competition and selection of teams for the M.C.C. Team Trials and the A.C.U. Inter-club Championship Trials was successfully run off on Saturday last over a course from the Red Lion, St. Albans, to Daventry *viâ* Dunstable and Weedon, and returning by the same route to the Bull at Redbourne. The distance is approximately 100 miles, and five hours were allowed. The starters were: E. A. Colliver (3½ h.p. Triumph), A. H. Colliver (3½ h.p. Triumph), P. H. Batchelor (3½ h.p. Triumph), Mrs. C. C. Cooke (3½ h.p. Triumph), C. C. Cooke (3½ h.p. Triumph), R. G. Goslett (3½ h.p. P. and M.), F. Mussell (3½ h.p. Rex), V. Wilberforce (5 h.p. Indian), E. Bennett (2½ h.p. Grandex-J.A.P.), Capt. M. Seymour (3½ h.p. Triumph), J. S. Seyfried (6 h.p. N.S.U.), G. S. Carter (3 h.p. Triumph), C. M. Down (5 h.p. Indian), and E. C. Jarvis (3½ h.p. Triumph). Each competitor was supplied with a printed card on which he had to enter any stops and particulars of same. E. A. Colliver was early in trouble, as he punctured immediately after starting. After repairing he continued, but finished inside schedule time at Redbourne. His brother, A. H. Colliver, had the bad luck to run over a dog, and later had to straighten his lamp clip. Batchelor made a non-stop, but was inside schedule. Goslett had carburetter troubles all the way, and finished outside time. Bennett was outside time at Daventry. Seyfried retired early with tyre troubles. G. S. Carter was unfortunate, as his front wheel bearing came adrift; he was unable to replace it and consequently retired. Mrs. C. C. Cooke, Hon. Secretary C. C. Cooke, F. Mussell, Wilberforce, Seymour, Down, and Jarvis made non-stops.

Herts County A.C. (motor cycle section) eliminating competition and selection of teams for the M.C.C. team competition and A.C.U. inter-club trials. Scenes at the starting point, the Red Lion, St. Alban's.

Entries for Next Saturday's Open Hill Climb.

List of entries for the Herts County A.C. (Motor Cycle Section) open hill-climb, to be run off at Aston Hill, Tring, Saturday, June 11th:

CLASS A.—For lightweights up to 130 lbs.

- H. D. Teage (2½ Hobart)
- L. M. Redding (2¾ Douglas)
- J. V. Robinson (2¾ Douglas)
- A. A. Chase (2 Chase)
- C. Patteson (2¾ Moto-Rêve)
- E. Clark (2¾ Douglas)
- J. Holroyd (1½ Motosacoche)
- A. A. Chase (2¾ Chase)
- E. Bennett (2½ Grandex)
- W. H. Islip (2¼ Royal Enfield)
- H. Greaves (2¼ Royal Enfield)
- F. E. Williams (1¼ Moto-Velo)

CLASS B.—Standard touring models up to 499 c.c.

- E. A. Burney (3½ de Haviland)
- P. Brewster (3½ Norton)
- R. Maxwell (3½ Triumph)
- E. A. Colliver (3½ Triumph)
- C. C. Cooke (3½ Triumph)
- B. Yates (3½ Humber)
- W. Keep (Midget Bicar)
- A. A. Chase (3½ Centaur)
- W. Cooper (3½ Brough)
- C. Cross (3½ L.M.C.)
- F. W. Applebee (3½ Centaur)

CLASS C.—For T.T. models up to 499 c.c.

- F. W. Barnes (3½ Zenith)
- P. Brewster (3½ Norton)
- H. Bevir (3½ L.M.C.)
- R. T. Wood (3½ Triumph)
- J. F. Crundall (3½ Humber)
- O. C. Godfrey (3½ Rex)
- C. C. Cooke (3½ Triumph)
- W. A. Jacobs (3½ Rex)
- A. R. Abbootl (3½ Rex)
- A. A. Chase (3½ Centaur)
- R. M. Brice (3½ Brown)
- E. Gwynne (3½ T.T. Triumph)
- A. Lister Cooper (3½ T.T. Triumph)
- W. G. McMinnies (3½ h.p. T.T. Triumph)
- Capt. Sir R. K. Arbuthnot, R.N. (3½ h.p. Triumph)
- C. A. Williams (3½ h.p. T.T. Triumph)

CLASS D.—Standard touring models up to 670 c.c.

- C. M. Down (5 Indian)
- C. E. Bennett (5 Indian)
- L. C. Munro (3½ N.S.U.)
- A. V. Deacock (3 Wanderer)
- M. Geiger (5 V.S.)
- D. R. Clarke (5 Indian)
- G. Lee Evans (5 Indian)
- W. O. Bentley (5 Indian)
- F. A. Hardy (5 V.S.)
- W. H. Bashall (5 Bat)
- J. T. Bashall (5 Bat)
- J. Thompson (5 Indian)
- J. Seyfried (6 N.S.U.)

CLASS E.—T.T. models up to 670 c.c

- C. E. Bennett (5 Indian)
- L. C. Munro (3½ N.S.U.)
- M. Geiger (5 V.S.)
- F. A. Applebee (4 Rex)
- D. R. Clarke (5 Indian)
- G. Lee Evans (5 Indian)
- W. O. Bentley (5 Indian)
- J. P. le Grand (5 Rex)
- F. C. Clement (5 Rex)
- W. H. Bashall (5 Bat)
- J. T. Bashall (5 Bat)
- J. Thomson (5 Indian)
- F. G. Baxenden (3½ N.S.U.)
- S. C. Perryman (5 Blumfield)

CLASS F.—For variable gears.

- F. W. Barnes (3½ Zenith Gradua)
- R. G. Goslett (3½ P. and M.)
- T. H. Tessier (5 Bat)
- F. Palmer (3½ P. and M.)
- F. J. Peard (3½ Scott)
- M. Geiger (7 V.S.)
- W. Keep (Midget Bicar)
- H. Karslake (4 Dreadnought)
- F. A. Hardy (5 V.S.)
- B. Marians (3½ P. and M.)
- B. Marians (2½ P. and M.)
- V. Underhill (3½ L.M.C.)
- W. G. Ayling (3½ Midget Bicar)
- J. Seyfried (6 N.S.U.)

CLASS G.—For any machine, fastest time to win.

- F. W. Barnes (3½ Zenith Gradua)
- A. Mackenzie Cott (3-10 King-J.A.P.)
- P. Brewster (3½ Norton)
- C. E. Bennett (5 Indian)
- W. Cooper (3½ Bradbury)
- W. A. Jacobs (3½ Rex)
- C. C. Cooke (3½ Triumph)
- D. R. Clarke (5 Indian)
- M. Geiger (5 V.S.)
- W. H. Bashall (7-8 Bat)
- G. Lee Evans (5 Indian)
- C. K. Wigram (6 Bat)
- E. D. Dickson (5 Indian)
- F. J. Peard (3½ Scott)
- W. O. Bentley (5 Indian)
- J. P. le Grand (5 Rex)
- W. H. Bashall (5 Bat)
- J. T. Bashall (5 Bat)
- C. M. Down (5 Indian)
- C. Perrens (7 Indian)
- F. White (4½ Rex)
- E. Gwynne (7 Indian)
- H. Lister Cooper (3½ T.T. Triumph)
- J. Thompson (5 Indian)
- R. M. Brice (3½ Brown)
- F. G. Baxenden (3½ N.S.U.)
- J. Seyfried (6 N.S.U.)
- F. P. Dickson (Zenith Gradua)

This climb should be worth going many miles to see, and Class G should produce a battle royal between Mackenzie Cott, E. Gwynne, and W. H. Bashall. Start at 3 p.m.

CURRENT CHAT

TIME TO LIGHT LAMPS

June 9	...(GREENWICH)	9.12 p.m.
„ 11	... ...	9.14 „
„ 13	... ...	9.15 „
„ 15	... ...	9.16 „

Police Traps.

We have received information that a police trap is working on the Ridgeway at Enfield, between Earlsdom and Spring Court. The trap is usually worked on Sundays in both directions.

There is a police trap at Lee Green on Lee Road in the direction of Eltham from Mottingham Lane to the bottom of Eltham Hill. The trap works both ways Saturdays and Sundays.

Comment Needless.

A comment in *The Bicycling World* of America, in the issue preceding the T.T. Race, reads rather funnily at this stage. It is as follows: "In fear of the further success of the American machine, which has made them sit up and take so much notice, it is understood that several of the British manufacturers have discarded belts and adapted their machines to chain transmission for the occasion." The paragraph reminds us very much of the adage, "Don't count your chickens before they are hatched." It may be added that the first eight machines to finish were belt driven.

C.T.C. Defends a Motor Cyclist.

The C.T.C. has been successful in getting a case dismissed against one of its motor cyclist members. The member in question was riding his motor cycle along Corporation Street, Manchester, at the rate of about five miles an hour, when a constable on point duty suddenly shot out his hand. The motor cyclist pulled up in five or six yards, and, the road being absolutely clear, the rider enquired with surprise why he had been stopped. He was informed that he would be summoned for riding in such a manner as to endanger life and limb! Several witnesses offered to give evidence in favour of the motor cyclist, and the C.T.C. took up the case, with the result that the constable's evidence entirely broke down, and the summons was dismissed.

SPECIAL FEATURES

A WEEK IN THE ISLE OF MAN (Illustrated).
THE FUTURE OF THE T.T. RACE.
A NEW AUTOMATIC CARBURETTER.
THE M.C.C. GYMKHANA AT BROOKLANDS.

M.C.C. Team Trial.

The next important event in the motor cycle world is the Motor Cycling Club's inter-club team trial for *The Motor Cycle* 50 guinea challenge trophy and M.C.C. medals. On the next page will be found a list of teams entered to date.

Police Tactics in Cheshire.

Cheshire is a county to be avoided by motorists. Returning from the Isle of Man, a party of motor cyclists were timed and numbers taken at different points. The officer informed the riders that should they be found to have exceeded the legal limit on comparing times the same evening, a summons would follow. Seeing that the roads were practically deserted, and it was raining at the time, such un-English methods will receive the strong disapproval of all sections of the motoring community.

Hundred Miles Road Race.

The annual road race of the Victorian M.C.C. was decided on April 24th, on the Sydney Road. The winner proved to be L. Benn, the scratch man, riding a 3½ h.p. Triumph, whose time for the first round (50 miles) was 1h. 8m. 50s. At the turn he was delayed ten minutes making some necessary adjustment, afterwards continuing and completing the course in 2h. 25m. 45s. Notwithstanding a strong wind that was blowing, Benn beat the previous record of a 2h. 26m. accomplished in the same event in 1907 by H. F. Hall on a 5 h.p. twin Peugeot.

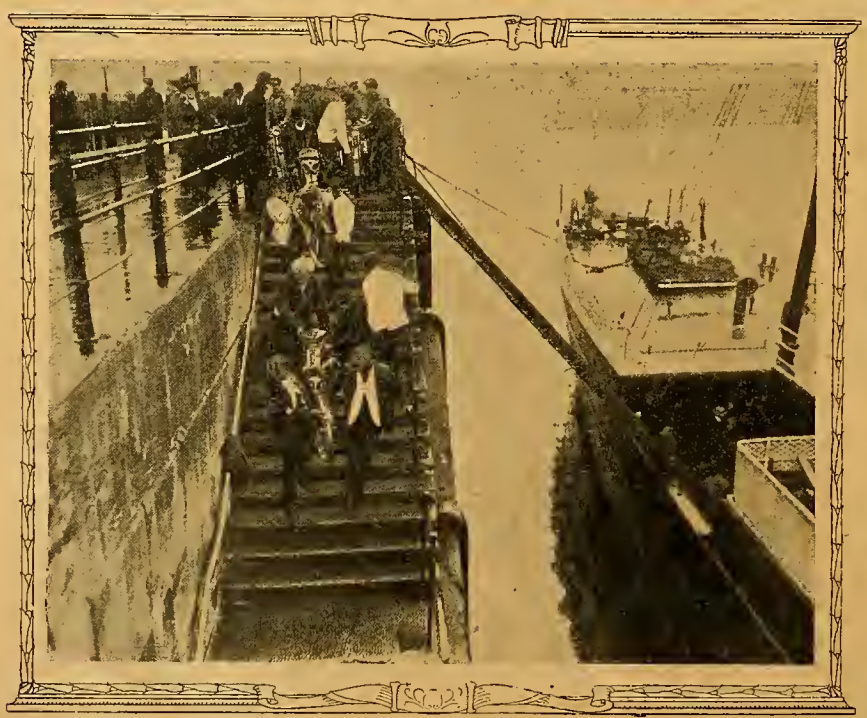
Dangers of Cattle on the Road at Night.

The question of drovers of cattle and sheep along the high roads carrying lights at night was discussed by the Canterbury Farmers' Club recently, a member considering the idea grandmotherly. He humorously suggested that bullocks might be fitted with dynamos to produce lights between their horns and on their tails! The club decided that in their opinion there was no ground of complaint.

A Disinterested View of the Situation.

A local paper's comment on the above decision is worthy of repetition:

"But it is not the motorist alone that finds the practice of driving herds at night dangerous. During the recent discussion on the question at the County Council meeting, Mr. W. F. Winch, himself not a motorist, described how he had just narrowly escaped a serious accident through driving a dog-cart into a flock of sheep on a dark night. It would be no great hardship to compel drovers to carry a lantern, and the light would prove useful to them in keeping an eye on their stock."



Carrying motor cycles down the Douglas quay steps on to the boat. This antiquated method of shipping machines at Liverpool and Douglas was the cause of much grumbling. Three and sometimes four labourers had to be chartered. We suggest that the Isle of Man Steam Packet Co. or the dockyard authorities adopt proper slings at an early date. A tarpaulin covering on deck would also be appreciated in case of wet.

G. W. Baker (3½ h.p. 1910 L.M.C.), who reduced H. A. Collier's Aston Track Record of 6 min. 51 secs. for five miles to 6 min. 40 secs.

The T.T. Race on the Bioscope.

The Tourist Trophy Race and the last race meeting at Brooklands are being shown on the bioscope this week at the Alhambra.

Midland Aviation Meeting.

Motor cycle clubs in the surrounding district of Wolverhampton are arranging a run to the Midland Aviation Meeting at Dunstall Park, Wolverhampton, from Monday, 27th inst., to Saturday, July 2nd.

Another Tourist Trophy for Twins.

We are happy to be able to announce that the Marquis de Mouzilly St. Mars is offering a second Tourist Trophy, similar to the magnificent statuette that he has already given, for the twin-cylinder machines in the next Tourist Trophy Race. Motor cyclists will welcome, we are sure, this sportsmanlike act with the heartiest approbation.

Unjust Prosecution of a Motor Cyclist.

The Motor Union has successfully defended a motor cyclist named Frank Bridgwater, who was summoned at Birmingham for driving a motor cycle to the danger of the public, and also for failing to stop his machine at the request of a police constable in uniform. The circumstances were of a curious nature, as on the day upon which the offences were alleged to have been committed at Birmingham the motor cyclist was away at Llandudno. The police were informed of this, but at first ridiculed the idea. Subsequently, however, they investigated the matter, but informed the Motor Union solicitor, Mr. M. Clive Blewitt, that no mistake had been made, and that they would proceed with the case. At the hearing of the summons, nine witnesses attended to prove that the defendant was not in Birmingham on the day in question. The magistrates held that the defence had clearly established that a mistake had been made, and in dismissing the summons allowed, on the application of the solicitor, £3 3s. costs against the police. The magistrates expressed their regret that the defendant should have been brought to the court on such charges. The pity is that the police cannot be made to pay the costs personally.

A Novel Engine.

We had the pleasure of riding a machine fitted with a new two-stroke engine one day last week. The design of the engine is simplicity itself, yet full of novelty. Further details will be forthcoming later. For the present we can only say that the engine is being tested by a large firm of manufacturers with a view to its adoption.

A T.T. Race at Brooklands.

On Wednesday, the 22nd inst., an important event is down for decision at the fourth monthly meeting of the B.M.C.R.C. A long distance race, amounting to 163 miles 103 yards, will be run under identical conditions with those governing the recent T.T. Race, and advantage will be taken of the opportunity to time riders at fifty miles, one hour, 100 miles, two hours, 150 miles, and three hours. Those T.T. competitors who experienced bad luck in the Isle of Man will now be able to show their paces on a flat track.

FUTURE EVENTS.

June 6-11—Scottish Six Days' Open Reliability Trial, organised by Edinburgh M.C.C.
" 18—M.C.C. TEAM TRIAL FOR "THE MOTOR CYCLE" CHALLENGE CUP. Competing Teams: Motor Cycling Club (holders), Coventry and Warwickshire M.C., Bristol B. and M.C., Streatham and District M.C., Sutton Coldfield A.C., Edinburgh M.C.C., Southern M.C., Harrogate and District M.C.C., Great Yarmouth and District M.C.C., Herts. County A.C., Essex M.C., N.W. London M.C.C., Oxford M.C.C., Nottingham and District M.C.C., and Sheffield and Hallamshire M.C.
" 18—Brooklands A.R.C. Meeting, 2 p.m.
" 25—Bradford M.C.C. Open Hill-climb at Cockshoot Lane, Skipton, 2 p.m.
July 4-9—A.C.U. End-to-end Reliability Trial.
" 13—Open Irish End-to-end Reliability Trial, promoted by the Ulster Centre.
" 13 (Wed.) and 14 (Thurs.)—Brooklands A.R.C. Meeting, 2 p.m.
" 23—A.C.U. Quarterly Trial, Uxbridge to Banbury and Back.

End-to-end Lightweight Record.

A Birmingham motor cyclist, Harold J. Cox, has entered his 1¼ h.p. Singer Moto-Velo for the End-to-end six days trials, and after arriving at John-o'-Groat's he proposes to turn round and make an attempt to set up a lightweight record. From recent personal experience with the Singer Moto-Velo we have little doubt that Mr. Cox will be successful in his ambition, despite the severity of the course.

The Heavy Brigade.

The accompanying illustration shows yet another of the heavy brigade, Mr. Harry Warden, an old Birmingham racing cyclist, who has ridden everything in the bicycle line from an ancient velocipede to a modern motor cycle. He weighs 19 st. 3 lbs., and stands 6ft. 1½in. His mount is an L.M.C., on which he is able to climb all local hills and keep a little reserve power. It is some time since we published a photograph of a heavyweight motor cyclist, and although Mr. Warden does not hold the record he is very near it.

Motor Cycling in Russia.

Motor cyclists of St. Petersburg have banded together, the name of the club being the French Motor Cycle Club. On the 29th ult. the opening run took place to Tzarskoi-Selo. Machines ridden by the members were four Wanderers, two F.N.'s, one each Adler, Motosacoche, Peugeot, Triumph, Allright, and Mars. To-day (Thursday) a road race has been arranged, the result of which will be announced in due course.

Unauthorised Speed Limit Signs.

Among the reports presented on Thursday last to the R.A.C. General Committee by the Associated Clubs was one from the Manchester A.C., which contained a reference to the existence of unauthorised reduced-speed-limit signs at Ashton-under-Lyne, on which the club had had correspondence with the local authorities, but unfortunately without result. The General Committee agreed to ask the Legal Committee to consider what action could be taken with the view of securing the removal of these and other similar unauthorised signs.

The M.C.C. Team Trial.

Club secretaries should note that entries for the team trial at Daventry on the 18th inst. close first post on Saturday next to Mr. J. Van Hooydonk, the trials hon. sec., Spring Villa, High Road, Finchley, N. In addition to the clubs stated in our "Future Events" column, the Derby and Leicester clubs are probable starters.

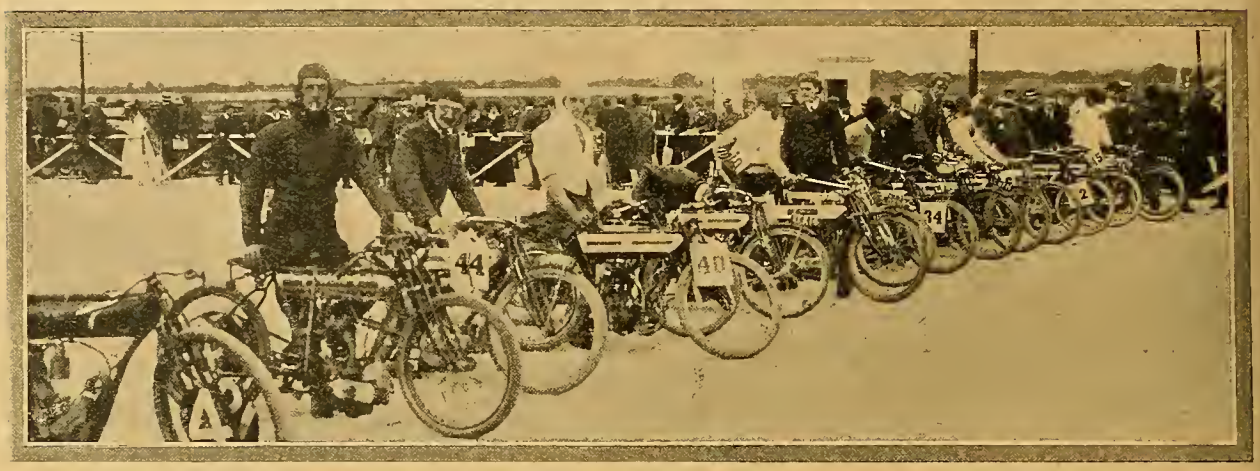
Non-stops Claimed in the T.T. Race.

It has been said that H. A. and C. R. Collier suffered trivial stops in the T.T. Race, and we ourselves distinctly remember the stand of C. R. Collier's machine trailing near the Devil's Elbow. Be that as it may, we have the assurance of the elder brother that neither of them "had any stoppages whatever except for filling up with petrol."

The actual winning Matchless is on view at the showrooms of Maude's Motor Mart, 136, Great Portland Street, W. The machine ridden by H. A. Collier may be inspected at the Service Co.'s premises, 292-3, High Holborn, W.C.

A Birmingham motor cyclist weighing 19st. 3lbs. (See paragraph on this page.)

The M.C.C. Race Meeting and Gymkhana.



Members of the M.C.C. ready to start in the handicap race for touring mounts with single-cylinder engines.

THE above event, which was held on Brooklands track last Saturday afternoon, was well attended. The weather was dull, but fortunately there was only one shower of rain. No less than eight motor cycle events figured in the programme. The first event, which took place shortly after 2 p.m., was a motor cycle race for ordinary single-cylinder touring mounts with engines not exceeding 550 c.c., for novices only; distance three laps. The following competitors started: W. Cooper (3½ h.p. Bradbury), scr.; H. L. Cooper (3½ h.p. Triumph), scr.; F. H. Mullett (3½ h.p. Triumph), 15s.; S. Webb (3½ h.p. Triumph), 15s.; C. B. Moss Blundell (3½ h.p. Triumph), 45s.; W. Price (3½ h.p. Rex), 1m.; H. E. Davison (3½ h.p. Rex), 1m.; A. V. Deacock (2½ h.p. Wanderer); A. T. Stanton (3½ h.p. Bradbury), 15s.; P. Janson (3½ h.p. Bat), 45s.; R. T. Wood (3½ h.p. Triumph), 25s.; A. L. Colyer (3½ h.p. Humber), 1m. 10s.; and L. A. Baddeley (3½ h.p. Brown), 25s.

First lap. Davison led the field, followed by Dr. Moss Blundell, Colyer, Price, and Lister Cooper.

Second lap. Moss Blundell took first place, followed by Lister Cooper, Mullett, Price, and Colyer. Wood retired with a broken belt.

Third lap. Dr. Moss Blundell (3½ h.p. Triumph) romped in an easy winner, H. Lister Cooper (3½ h.p. Triumph) second, and H. E. Davison (3½ h.p. Rex) third. Just before reaching the finishing line Price's machine struck a bump and wobbled violently: the rider could not recover, and fell heavily in full view of the spectators, fortunately without seriously damaging either himself or his machine. Winner's time, 9m. 17⅕s. Speed about 53.41 m.p.h.

Event 2.

Motor cycle race for ordinary touring mounts with multi-cylinder engines of a cubic capacity between 400 and 1,000 c.c., for novices only; distance three laps.

Starters: E. B. Dickson (5 h.p. Indian), 10s.; A. V. Deacock (2½ h.p. Wanderer), 30s.; C. M. Simpson (7 h.p. V.S.), scr.; C. Gibbons (5 h.p. Indian), 50s.; and W. A. Sale (5 h.p. Rex), 10s.

All got away in good style, but Gibbons's clutch was slipping badly at the start; it gripped, however, a moment later, and he set off at a smart pace.

First lap. Gibbons well to the front, followed by Dickson, Sale, Deacock, and Simpson.

Second lap. Gibbons still leading, but Dickson rapidly gaining ground, followed by Sale, Simpson, and Deacock trailing his stand on the track.

Third lap. E. B. Dickson (5 h.p. Indian) an easy winner; C. Gibbons (5 h.p. Indian), second; and W. A. Sale (5 h.p. Rex), third. Time, 9m. 19⅗s. Winner's speed about 53.39 m.p.h.

Event 4.

Motor cycle race for any type of motor bicycle with single-cylinder engine not exceeding 550 c.c., open to any member of the club; distance three laps.

Starters: E. Gwynne (3½ h.p. Triumph), 45s.; G. Lee Evans (4 h.p. Indian), scr.; Sir R. K. Arbuthnot, Bart. (3½ h.p. Triumph), 35s.; J. F. Crundall (3½ h.p. Humber), scr.; J. Cox (3½ h.p. McNab), 10s.; H. L. Cooper (3½ h.p. Triumph), 10s.; F. H. Mullett (3½ h.p. Triumph), 25s.; C. B. Moss Blundell (3½ h.p. Triumph), 55s.; A. T. Stanton (3½ h.p. Bradbury), 25s.; E. D. Colrick-Herne (3½ h.p. Triumph), scr.; W. A. Jacobs (3½ h.p. Rex), scr.; R. T. Wood (3½ h.p. Triumph), 35s.; L. A. Baddeley (3½ h.p. Brown), 35s.; F. W. Barnes (3½ h.p. Zenith), scr.; S. Grey (3½ h.p. Rex), 35s.; and S. May (3½ h.p. Triumph), 35s.

All got away well at the start, but Barnes's splendid acceleration, due to his Gradua gear, evoked much enthusiasm.

First lap. Captain Sir Robert Arbuthnot led the field, followed by Mullett and Grey (whose machine was missing fire at the time).

Second lap. Mullett assumed the lead, while Sir Robert Arbuthnot took second place and Barnes third.

Third lap. F. H. Mullett (3½ h.p. Triumph) romped in a winner, E. D. Colrick-Herne (3½ h.p. Triumph) was second, and G. Lee-Evans (4 h.p. Indian) third. Time, 8m. 59⅕s., winner's speed about 55.40 m.p.h. Some difficulty was experienced in this and other races in distinguishing the competitors' numbers, some curled up, others were placed in illegible positions, and others fell off.

Event 6.

Motor cycle race for any type of motor bicycle with multi-cylinder engine of a cubic capacity between 400 and 1,000 c.c., open to any member of the club; distance four laps. Starters: W. H. Wells (5 h.p. Indian), 20s.; G. Lee-Evans (7 h.p. Indian), scr.; E. B. Dickson (5 h.p. Indian), 1m. 5s.; V. Olsson (7-9 h.p. Oxted-J.A.P.), 1m. 5s.; E. Pond (4½ h.p. Premier), 1m. 40s.; C. M. Simpson (7 h.p. V.S.), 55s.; C. Gibbons (5 h.p. Indian), 1m. 45s.; J. [illegible] le Grand (5 h.p. Rex), 40s.; E. C. W. Fitzherbert (5-6 h.p. F.N.), 1m. 25s.; and W. A. Sale (5 h.p. Rex), 1m. 5s.

First lap. Gibbons led, followed by Olsson, Wells, Fitzherbert, Dickson, Pond, Le Grand, Evans, and Simpson. Evans was travelling at a great pace.

Second lap. Olsson assumed the lead, while Wells and Evans followed.

Third lap. Olsson maintained his place, while Evans ran second and Wells third.

Fourth lap. G. Lee-Evans (7 h.p. Indian), 1st; V. Olsson (7-9 h.p. Oxted-J.A.P.), 2nd; and W. H. Wells (5 h.p. Indian), 3rd. Time, 10m. 40s. Winner's speed, 62.22 m.p.h.

The M.C.C. Race Meeting and Gymkhana at Brooklands, as seen by our artist.

MR LAMBERT'S T.A.C. CAUSES INTEREST
THREE STAGES OF LOCOMOTION ALL SEEN TOGETHER
THE CHIEF MARSHAL
F. H. MULLETT WINS WITH HIS 3½ H.P. TRIUMPH.
J. PLATT-BETTS.
A "VETERAN" WINNER
MR CHAS. JARROTT JUDGES.
A WELL KNOWN OFFICIAL
THE "PUSH BIKE" EVENT.
THE TIME-KEEPER
F.W. BARNES IS A POPULAR CANDIDATE
"LIFE BELT" RACE
SOMETHING LIKE A HILL
F.W. BROOKLANDS.
THE CAR STARTING ORGAN GRINDER WINNING.
THE GALLANT CAPTAIN FIRST TO HIS TRIUMPH, BUT NOT IN THE RACE
No 40 WINS THE SKILFUL DRIVING.

The M.C.C. Race Meeting and Gymkhana.—

Event 7.

Invitation scratch race for silver cup. Open to riders of standard machines "as issued to the public," fulfilling the requirements of a touring motor bicycle, in the opinion of the judges. Distance, five laps. Starters: A. T. Stanton (3½ h.p. Bradbury), L. A. Baddeley (3½ h.p. Brown), E. Gwynne (3½ h.p. Triumph), J. F. Crundall (3½ h.p. Humber), J. Cox (3½ h.p. McNab), W. Cooper (3½ h.p. Bradbury), C. B. Moss Blundell (3½ h.p. Triumph), F. H. Mullett (3½ h.p. Triumph), Capt. Sir R. K. Arbuthnot, Bart., R.N. (3½ h.p. Triumph), and H. L. Cooper (3½ h.p. Triumph).

All made an excellent start, though Stanton was a trifle behind the others.

First lap. Lister Cooper led the throng, followed by Mullett, Moss Blundell, Cox, W. Coooper, Crundall, Arbuthnot, Stanton, Baddeley, and Gwynne.

Second lap. Lister Cooper still held first place and Mullett the second, both well ahead of the third man, Moss Blundell.

Third lap. Mullett had now taken first place, and was well ahead of the second man, Lister Cooper, and Moss Blundell was still third.

Fourth lap. Mullett had increased his lead, while the first and second remained as before. Lister Cooper momentarily slowed at the fork.

Fifth lap. F. H. Mullett (3½ h.p. Triumph) first, H. Lister Cooper (3½ h.p. Triumph) second, and Moss Blundell (3½ h.p. Triumph) third. Time 14m. 39s. Winner's speed about 56.63 m.p.h.

As all the above races took place at the fork, the spectators were able to watch the progress of every lap with unfailing interest.

Event 9, the Hill Climb.

After tea the next motor cycle event (No. 9) was a hill-climb up the test hill, with its three gradients (1 in 8, 1 in 5, and 1 in 4). Award: Special prize given by Mr. E. B. Dickson, M.C.C. captain. The start was made just behind the timekeeper's box. Two runs were made up the hill, the first to decide the handicap. During the first attempt F. W. Barnes made the star performance, accomplishing the climb in 9s. Nearly everyone got up satisfactorily, but Gibbons opened his throttle too suddenly and failed quite low down. Simpson, Davison, Sale, and Pond also did not get up. Fletcher pedalled, and so did De Lissa, but his little Motosacoche really pulled splendidly.

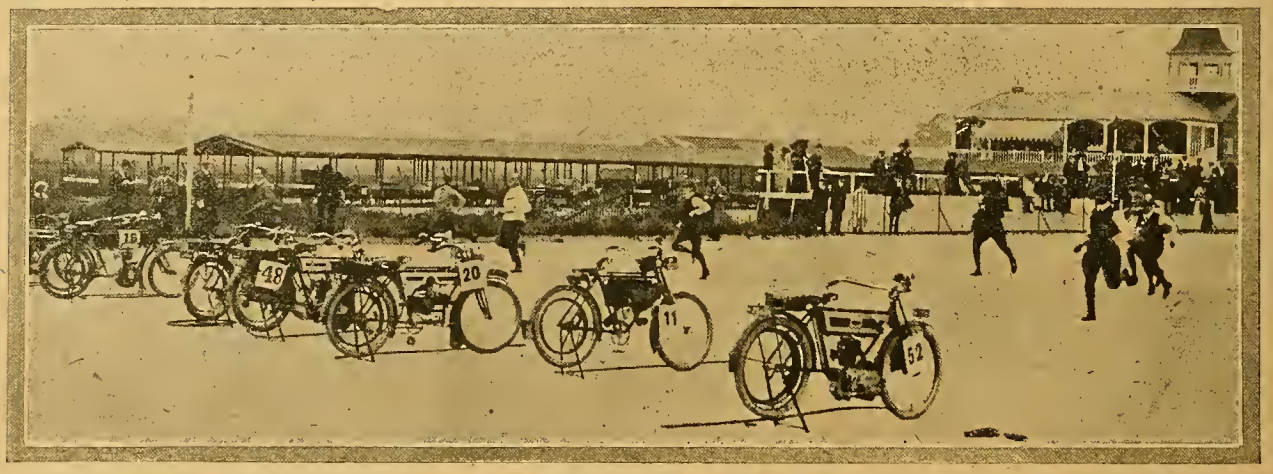
In the hill-climb trial Dr. Moss Blundell (3½ h.p. Triumph), 4s. start, was first, 6⅗s.; A. T. Stanton (3½ h.p. Bradbury), 2⅗s. start, was second, 8⅕s.; L. A. Baddeley, ⅗s. start, 8⅘s., third. Barnes and Baddeley tied in making fastest time, actual time 9⅕s., ⅕s. slower than Barnes's fastest time in the preliminary ascent. After leaving the cement surface on the top of the hill the riders landed into soft loose gravel. Lister Cooper and Mullett fell through dry skidding in this the moment they applied their brakes. Both fell heavily, but, fortunately, without suffering much damage.

Details of the Hill-climbing Competition.

		H'cap time. secs.	Start. Secs.	Actual time. Secs.
1.	C. B. Moss Blundell (3½ Triumph)	6⅗	4	10⅗
2.	A. T. Stanton (3½ Bradbury) ...	8⅕	2⅖	11
3.	L. A. Baddeley (3½ Brown) ...	8⅘	⅗	9⅕
4.	H. Lister Cooper (3½ Triumph) ...	9	⅖	9⅖
	E. B. Dickson (5 Indian)	9	⅗	9⅗
	F. A. Hardy (5 V.S.)	9	4⅖	13⅖
	W. Cooper (3½ Bradbury)	9	2	11
8.	F. H. Mullett (3½ Triumph) ...	9⅕	1⅘	11
	F. W. Barnes (3½ Zenith)	9⅕	scr.	9⅕
	R. T. Wood (3½ Trinmph)	9⅕	⅘	10
	H. Bevir (3½ L.M.C.)	9⅕	5⅕	14⅖
12.	E. D. Colrick-Herne (3½ Triumph)	9⅖	1	10⅖
	A. G. Peppercorn (3½ Triumph) ...	9⅘	4⅘	14⅗
14.	S. Webb (3½ Triumph)	10	3	13
15.	Spenser Grey (3½ Rex)	10⅖	3⅕	13⅗
	W. A. Jacobs (3½ Rex)	10⅖	⅖	10⅘
17.	O. L. de Lissa (1½ Motosacoche) ...	10⅘	7	17⅘

Event 10.

was a most amusing affair—a life-belt race—probably so-called because the men had to remove their belt fasteners by *undoing a screw*, lay their belts on the ground, and sprint for their lives for a hundred yards to their machines, put on their belts, and ride to the line from which they had started on foot. Baddeley, De Lissa, J. V. Robinson, Peppercorn, Pond, Fowke, Arbuthnot, and Fletcher were in for this competition. A wild rush ensued, in which Fletcher reached his machine first, Baddeley got his belt on first, but forgot to slip it through one stay of the carrier, Sir Robert Arbuthnot had trouble in fixing up his stand, and Fletcher, who was first away, could not raise his exhaust valve for some yards. Result: De Lissa first, Fletcher second, Sir R. K. Arbuthnot third.



Competitors sprinting towards their machines in the "Life Belt" Race. The camera has caught one or two riders in decidedly energetic attitudes.

Event 12.

Skilful driving competition for Mrs. Jarrott's prize. The competitors had first to ride on a narrow black line on the track and then thread their way over a complicated course with numerous terribly sharp bends round various posts and finish. A marshal stood at each post to direct the men which way to take the turn.

Robinson did not keep the line very well, but finished satisfactorily.

Barnes left the line almost altogether, but covered the tricky course most skilfully.

De Lissa deviated slightly from the line near the top, but otherwise executed a skilful performance.

Fletcher kept the line fairly well, and finished satisfactorily.

Fowke failed at turn near the top of the course.

Colyer did not keep the line very well, but managed the course satisfactorily, thanks to his low gear.

The M.C C. Race Meeting and Gymkhana.—

Karslake finished satisfactorily.

Stanton kept the line well, but went the wrong side of two posts.

Colrick-Herne's single-geared T.T. Triumph kept the line absolutely—a most skilful performance.

Marian's two-speed P. and M. kept the line well, but made rather wide sweeps at bends.

Wood failed at last post but one.

Baddeley managed satisfactorily; rode with compression tap half open.

Bell's new four-cylinder F.N. made an excellent performance.

Mullett failed at last post but two.

Winner, Colrick-Herne.

Event 13.

Tortoise race. Distance, about 100 yards, slowest to win. The men were handicapped according to their gears. Presuming it is more difficult to drive slowly with a high gear than with a low one, the highest geared machine had to cover the greatest distance. Starters: H. G. Bell (four-cylinder F.N.), gear 5¼ to 1, start 48 paces; A. T. Stanton (3½ h.p. Bradbury), 5 to 1, 52 paces; F. W. Barnes (3½ h.p. Zenith), 7 to 1, 30 paces; Colrick-Herne (3½ h.p. Triumph), 4¼ to 1, 32 paces; F. H. Mullett (3½ h.p. Triumph), 6½ to 1, 35 paces; O. de Lissa (1¼ h.p. Motosacoche), 6⅞ to 1, 30 paces; J. V. Robinson (2¾ h.p. Douglas), 5¾ to 1, 40 paces; G. L. Fletcher (2¾ h.p. Douglas), scratch.

Bell and Robinson were the first to stop their engines, Barnes alone crawling home a winner; De Lissa was second.

At the conclusion of the meeting, Mrs. R. H. Head distributed the prizes. The judges were Mr. Chas. Jarrott (president) and Mr. R. H. Head. The hard-working chief marshal was Mr. L. Vedy, and the starter Mr. V. Hart. The hon. sec. to the gymkhana committee was Mr. S. H. Fry.

Mrs. Charles Jarrott presented a prize for a skilful driving competition. O. L. de Lissa (1¼ h.p. Motosacoche) is seen competing for this prize.

ENTRIES FOR THE A.C.U. SIX DAYS' END-TO-END TRIALS.

The following are the entries for the Land's End to John-o'-Groat's trial, July 4th to 9th:

P. H. Allen (2⅜ Douglas)
Jack Haslam (2⅜ Douglas)
Philip Grout (2¾ Douglas)
C. Patteson (2¾ Moto-Rêve)
H. H. Bowen (6-7 Bat)
J. D. A. Munro (6-7 Bat)
J. R. Haswell (3½ Triumph)
G. H. Lake (3½ P. and M.)
W. W. Douglas (2¾ Douglas)
P. Phillips (2¾ Douglas)
E. Clark (2¾ Douglas)
F. Dover (3½ Triumph)
F. G. Boddington (4 J.A.P.)
H. J. Cox (1¼ Motosacoche)
J. A. Stacey (3½ Triumph)
W. H. Bashall (5 Bat)
J. T. Bashall (5 Bat)
W. H. Wells (two Indians)
W. O. Bentley (5 Indian)
E. Nelson (one ———)
Phelon and Moore (two P. and M.)
Bat Motor Mfg. Co. (one Bat)
G. Brough (one Brough)
J. Gibson (5 Indian)
S. A. M. Witham (6 Bat)

AVERAGE SPEEDS IN THE TOURIST TROPHY RACE.

Position	Rider and Machine.	No. of Cyls.	Total Net Time.	Miles per Hour.	
			h. m. s.		A.C.U. Awards.
1	C. R. Collier, 5 h.p. Matchless-J.A.P.	2	3 7 24	50.627	Winner of Trophy and £40.
2	H. A. Collier, 5 h.p. Matchless-J.A.P.	2	3 12 45	49.221	Winner of £20.
3	W. Creyton, 3½ h.p. Triumph	1	3 17 58	47.925	Winner of £10.
*4	J. W. Adamson, 3½ h.p. Triumph	1	3 21 46	47.022	Winner of £5 and Silver Cup value £5 5s.
*5	J. Scriven, 4 h.p. Rex	2	3 23 35	46.602	Winner of Silver Cup value £2 2s.
6	J. Marshall, 3½ h.p. Triumph	1	3 24 47	46.33	
*7	H. Lister Cooper, 3½ h.p. Triumph	1	3 25 24	46.19	The A.C.U. will present a Silver Medal to all who completed the course.
8	W. F. Newsome, 3½ h.p. Triumph	1	3 26 35	45.926	
9	F. Philipp, 5 h.p. Scott	2	3 31 47	44.798	
10	H. V. Colver, 5 h.p. Matchless	2	3 36 40	43.789	Special Awards.
*11	C. E. Murphy, 3½ h.p. Triumph	1	3 37 15	43.671	J. R. Alexander wins the Indian Trophy presented by the Hendee Mfg. Co.
12	W. Heaton, 5 h.p. N.S.U.	2	3 37 46	43.567	
*13	Howard Smith, 3½ h.p. Triumph	1	3 40 15	43.076	
*14	J. R. Alexander, jun., 5 h.p. Indian	2	3 42 49	42.58	The Triumph Cycle Co., Ltd., will present Gold Medals to all private owners riding Triumph machines who completed the course.
*15	W. G. McMinnies, 3½ h.p. Triumph	1	3 45 15	42.117	
*16	H. Rem Fowler, 4 h.p. Rex	2	3 45 48	42.025	The Rex Motor Mfg. Co., Ltd., will present Gold Medals to all Rex riders who completed the course. J. Scriven will also receive the Special Rex Medal offered for the first private owner to finish on a machine of this make.
17	J. Slaughter, 3½ h.p. Ariel	1	3 48 0	41.612	
*18	D. C. Bolton, 4 h.p. Rex	2	3 51 45	40 938	
*19	J. R. Woodward, 4 h.p. Rex	2	4 5 51	38 59	Price's Patent Candle Co., Ltd., offered a cash prize of 20 guineas to the winner unconditionally.
*20	J. Baxter, 4 h.p. Rex	2	4 7 49	38 284	
21	G. Lee Evans, 5 h.p. Indian	2	4 9 16	38 062	
22	A. H. Alexander, 3½ h.p. Rex	1	4 10 15	37.912	
*23	W. E. Grange, 3½ h.p. Rex	1	4 10 37	37.856	
24	Eric S. Myers, 5 h.p. Scott	2	4 16 50	36.94	
25	D. M. Brown, 3½ h.p. Humber	1	4 17 30	36.844	
26	S. C. Perryman, 5 h.p. Blumfield	2	4 31 8	34.993	
27	A. J. Sproston, 4 h.p. Rex	2	4 35 6	34.487	
28	P. Weatherilt, 3½ h.p. Zenith Gradua	1	4 41 53	33.657	
29	F. W. Chase, 3½ h.p. Centaur	1	4 45 19	33.252	

*Private owners.

26th May, 1910.

(Signed) C. P. Glazebrook, A. V. Ebblewhite, T. D. Dutton, Official Timekeepers.
J. Stewart Mallam, Time Auditor.

BRITISH MOTOR CYCLE RACING CLUB.

OPEN RACE MEETING.

On Wednesday, the 22nd inst., the following event will be held at Brooklands open to members and non-members.

THE BROOKLANDS TOURIST RACE.—A long-distance motor cycle race at Brooklands, under identical conditions with those governing the T.T. Race. The distance to be covered will be fifty-nine laps, amounting to 163 miles 103 yards. The race will be for (1) single-cylinder motor cycles not exceeding 500 c.c., and multi-cylinder motor cycles not exceeding 670 c.c. The timing and awards will be kept quite separately for each class.

Awards.

First and second prizes for multi-cylinder machines, Brooklands Silver Cups, presented by Major Lindsay Lloyd.

Third prize, the B.M.C.R.C. gold medal.

First and second prizes for single-cylinder machines, Brooklands Silver Cups, presented by the B.M.C.R.C.

Third prize, the B.M.C.R.C. gold medal.

B.M.C.R.C. silver medals will be awarded to all other than the first three in each class completing the distance in less than three hours.

First private owner, multi-cylinder machines, Brooklands Silver Cup, presented by Mr. A. G. Reynolds.

First private owner, single-cylinder machines, Brooklands Silver Cup, presented by Mr. W. Pratt.

Entry fee, £1 1s.; reduced entry fee to members of the B.M.C.R.C., 10s. 6d. Entries close noon June 18th.

NORTHERN LEAGUE MEETING AT YORK.

Military Sunday at York, on the 5th inst., was this year a record. The number of motor cyclists in the historic city would number many hundreds. Over seventy attended the luncheon at the Royal Station Hotel, organised by the Northern League. This function proved a great success. Riders hailing from Selby, Hull, Leeds, Middlesbrough, Bishop Auckland, Harrogate, and Sheffield attended, and nearly all the Northern clubs were represented, Bishop Auckland and Scarborough having the largest attendance. Dr. W. H. Coates, of the Army Motor Reserve, presided, and afterwards the riders made for Garrowby Hill, Pocklington, where under the guidance of the Pocklington club, a survey was made of the hill, which is proposed as the venue of the first contest. A meeting of the council will be held on Saturday, June 18th.

Suggested design of badge for the Northern League of Motor Cyclists.

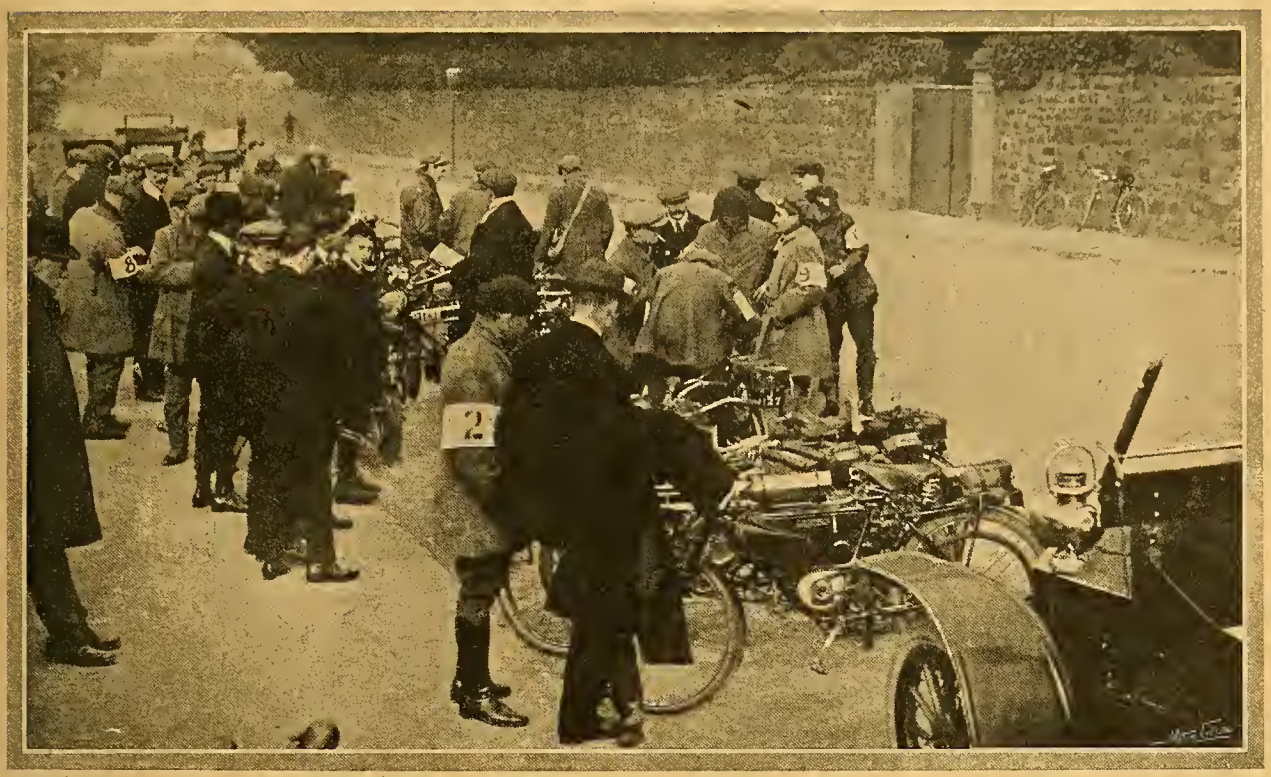
Glasgow Clarion Cycle Club Sports
A near thing in the Three Mile Handicap
MOTOR CYCLE EVENTS
Baxter pluckily passes Grant in last lap, Grant in an endeavour to retain inside position almost brings a splendid race to a tragical conclusion.
H.A. Collier has the speed but is outridden by Alexander in a Sporting final
J.R. Alexander – 5 H.P. 'Indian'
Winner of Three Miles Handicap
F.A. Bennett 1910

NORWICH CHARITY SPORTS.

At the Norwich Sports on Saturday last two motor cycle scratch races were held of three and five miles. Also time trials for track record over the flying mile. Harry Martin, on a Martin-A.S.L., won both the three and five mile events, and made fastest time for the flying mile of 1m. 22s., beating Colver by $\frac{4}{5}$s. Martin also accomplished a remarkable flying mile of 73s. in the five miles race, said to be the fastest mile ever ridden on a three-lap dirt track in the U.K.

A group of members of the Northern League of Motor Cyclists assembled at York on Sunday last. The members had ridden from various parts of the North to witness the military parade.

The Scottish Six Days' Trials.



The Scottish Six Days' Reliability Trials promoted by the Edinburgh M.C.C. A general view of the start from Murray Field, Edinburgh.

Bright sun and a following wind favoured the competitors in the above trials when they started from Edinburgh on Monday morning last. The whole of the nineteen entries materialised, namely:

S. J. K. Thompson (7-8 Bat and sidecar)
W. W. Douglas, G. L. Fletcher, and P. Phillips (2¾ Douglas)
J. S. Holroyd (Motosacoche)
P. W. Bischoff (1909 Triumph)
W. Pattullo (1908 Triumph)
J. T. Wood (3½ Zenith-Gradua)
J. Donaldson (3½ Bat)
W. Pratt (3½ P. and M.)
H. S. Bilbe and B. Yates (3½ two-speed Humbers)
A. F., A. N. Downie, and J. Slaughter (3½ Ariels)
B. Macmillan (5 Bat)
A. H. Hay (3½ Matchless)
W. Houghton (3½ Bradbury)
G. A. Alexander (Bat)

Immediately after lunch at Arrochar a rough road commences the six miles ascent of Glencoe up to the ill-famed bend at "Rest and be Thankful." The riders' performances were frankly disappointing in spite of the strong wind blowing up the pass. Seven machines possessed variable gears, but with the exception of Bert Yates's 3½ h.p. Humber two-speed, which made a magnificent ascent, they all overheated. From below the summit of the single-geared machines, Bischoff and Pattulla (1909 and 1908 Triumphs respectively), went up excellently, as did Fletcher (2¾ h.p. Douglas). The Douglas machines have a dog clutch variable gear. Thompson provided the star turn of the day on his single-geared 8 h.p. Bat and sidecar, as after stopping lower down to adjust a slipping belt he roared up to the hairpin and skidded round with his passenger lying across the back of his mudguard. A tube of the sidecar afterwards collapsed from the strain, but it was temporarily repaired to enable it to proceed by lashing on a stake from the hedge. Holroyd's Motosacoche went up in two stages, and Donaldson (3½ h.p. Bat) unfortunately came a nasty cropper on the hairpin.

Later on the road degenerated into a mere moorland track with a very loose and stony surface and atrocious corners; there were also many short steep pitches. The riders have had a perfect glut of loch and mountain scenery, and all were quite enthusiastic about the route.

Aberfeldy was the destination, and thirteen competitors had come in up to the dinner hour—Bilbe, Houghton, Alexander, Thompson, Donaldson, and Hay being late.

Full marks were gained on Monday by Douglas, Phillips, Holroyd, Bischoff, Wood, Yates, F. Downie, and probably Pratt. Pattullo lost 5 marks, Macmillan 7, Fletcher 13, N. Downie and Slaughter 38 each, Bilbe, Alexander, and Donaldson 60 each. Houghton retired collided with a cart. Hay arrived at midnight.

The starters on Tuesday numbered eighteen, and it was raining hard.

END-TO-END SIDECAR RECORD BEATEN.

At 1.40 a.m. on Monday last, Hugh Gibson (driver) and G. Wray (passenger) left John-o'-Groat's on a 1910 standard single-geared 3½ h.p. Triumph and Mills-Fulford rigid sidecar on a plucky attempt to capture M. Geiger and W. Lamm's End-to-end record of 51 hrs. 45 mins., accomplished last October with a 7 h.p. two-speed V.S. Messages received by *The Motor Cycle* recording Gibson's progress are as under:

"Gibson and Wray arrived Beauly 7.25 a.m. and left at 7.45 a.m.—Morison."

"Arrived Perth 12.35, left 1.16."

"Arrived Lockerbie at 6.15 p.m., left at 6.37 p.m,"

Tuesday.

"Had wonderful run. Arrived Wigan 1 a.m., 4 hours ahead of schedule. Machine pulls marvellously. Two punctures, one valve and belt broken. Failed on Berriedale. Averaged twenty-five to Bridgnorth.—Hugh Gibson."

"Arrived Gloucester 7.17 a.m., left 7.52 a.m."

"Arrived Exeter 12.35 p.m., left 1.25 p.m."

The last wire received from Gibson on Tuesday evening announcing his success reads as follows:

"Arrived Land's End 6.27. Time, 40 hrs. 47 mins."

Further details of the ride will appear next week.

CLUB NEWS

Newport (Mon.) and District M.C.C.

To-day (Thursday), also on Saturday next, there is a run to the Wye Valley *via* Chepstow, leaving headquarters at three o'clock.

Leeds M.C.C.

The annual invitation run to London and back is to be held on the 18th and 19th June. Three members from all surrounding clubs are invited. This event promises to be a successful one, as already entries are flowing in. For particulars apply to Mr. F. O. Langton, hon. trials sec., The Calls, Leeds.

Aberdeen and District M.C.C.

The club held a hill-climb at Learney Hill, Torphins, on Saturday, 28th May. The principal prize, value £1 1s., presented by Mr. J. M. Henderson, was won by A. Stewart (6 h.p. J.A.P.), and the club prizes were won by: 1, G. Cumming (5 h.p. F.N.), .076; 2, G. F. Davie (5 h.p. Vindec), .057. The timekeepers were Messrs. Fred Turnbull and J. C. Ogilvie Will.

Bradford M.C.C.

The annual climb for the Dyson Shield was held last Saturday at Tong. There were twenty-two entries, which were run in pairs on handicap lines, starts being given in number of yards on a basis of weight and make of machine, etc. Some clever climbing was witnessed, H. Shaw (7 h.p. Indian) ascending the hill at sixty miles per hour, Jack Scriven (5 h.p. Speed King Rex), T. Hargreaves (5 h.p. T.T. Scott), and F. Phillip (5 h.p. T.T. Scott) being very little slower. Felix Scriven (3½ h.p. Rex) and A. Davey (2¾ Moto-Rêve) ran a very close heat, Davey, taking 200 yards start, being beaten by a few lengths. In the final heat, C. Bedford, the holder, having six stones advantage in rider's weight, conceded 270 yards to T. Bullus, the latter winning by 100 yards. Final:

T. Bullus (3½ h.p. Phelon-Moore), shield and gold medal.
C. Bedford (3½ h.p. T.T. Triumph), silver medal.
F. Pitney (3½ h.p. S.K. Rex), bronze medal.
The hill was 1,000 yards in length.

Surrey M.C.C.

The annual twelve hours' reliability competition was held on Wednesday, June 1st, from Guildford to Lyme Regis and back. The start was made at 6 a.m., and competitors were despatched at two minute intervals. There were control stations at Winchester and Dorchester, in addition to the two terminal controls on each journey, and a number of secret controls at which a margin of a few minutes was allowed. In spite of the trying nature of the course, two of the riders succeeded in completing the trial without losing any marks, consequently the first prize (a silver cup, presented by Mr. McNab) has not yet been definitely awarded. The second and third prizes were gold and silver medals respectively.

The weather for the first part of the trial was unfavourable, heavy rain being experienced until after the New Forest had been passed; afterwards better conditions prevailed, and the return was made in real June sunshine. The results were as follows:

		Marks.
1.	H. Mitchell (3½ h.p. Triumph) ...	500
	J. A. Manners-Smith (3½ Triumph) ...	500
3.	J. H. Sparks (3½ Triumph)	480
4.	C. J. Feeny (3½ Triumph)	430
5.	G. Pine (3½ Triumph)	370
6.	H. R. Owtram (3½ Triumph)	0

Also ran: A. G. Fenn (Indian), missed secret control by taking the wrong road; P. Mitchell (2¼ h.p. F.N.), did not return to Guildford; L. Kennard (5 h.p. Vindec), retired at Dorchester on the return through engine trouble; C. Gammon (3¼ h.p. Rex) and W. C. Wiltshire (3½ h.p. Kerry-Abingdon), did not reach Lyme Regis; E. March (3½ h.p. Chater-J.A.P.), retired through a burst tyre.

A petrol consumption competition will be held on Wednesday, June 22nd.

Derby and District M.C.C.

A hill-climbing competition will be held on Hazlewood Hill on Saturday, meet at Market Place 2 o'clock prompt.

Harrogate and District M.C.C.

On July 3rd a reliability trial over the following course will be held: Skipton, Settle, Kirkby Lonsdale, Kendal, up Shap to Penrith, from there up Hartside to Alston, Middleton-in-Teesdale, Barnard Castle, Scotch Corner, Boroughbridge, and Harrogate—approximate distance 200 miles.

Southern M.C.

All competitors who started in the Blandford and back 190 miles reliability trials qualified for gold medals, none losing more than ten points. Deductions were made at the rate of one point per minute variation from schedule. The three competitors with the least variation from schedule are: (1.) T. E. Goodley (3½ h.p. Triumph), winner of Triumph Cup, variation nil. (2.) J. H. Wheeler (3½ h.p. Triumph), ½ minute. (3.) A. W. Holt (5 h.p. J.A.P.), 1½ m. Winner of cup (1909) T. E. Goodley.

Manchester M.C.

On Saturday last a 100 miles reliability trial for the motor cycle members was held to decide which riders shall represent the club at the forthcoming M.C.C. Team Trial. Fourteen riders started.

The competition was started from the Nag's Head Hotel, Bucklow Hill, at 2 p.m., the 100 miles non-stop run being approximately four times round a more or less circular route of twenty-five miles.

The result was very close:

Manchester M.C. Reliability Trial. A competitor at the starting point.

Single machines.—W. T. Munroe (3½ h.p. Rex), H. L. Cunliffe (3½ h.p. Rex), 100 marks each; F. Sirett (3½ h.p. N.S.U.), J. E. Leigh (3½ h.p. Triumph), 99 marks each; G. S. Stevens (5 h.p. Dot twin), H. J. Scales (3½ h.p. J.A.P.), 98 marks each.

Passenger motor cycles.—J. P. Scott and H. Turner (3½ h.p. chain-driven Rex, with sidecar), 97 marks; J. E. Tytler on a sidecar Dot had belt trouble after riding consistently for threequarters or more of the distance.

Club News.—

Coventry and Warwickshire M.C.

On Saturday last a most enjoyable ten hours' run was held to North Wales. The outward journey had to be covered at an average of nineteen miles per hour, the total time not to exceed ten hours. Secret checks were arranged at different points to decide the prize winners for the most regular running. The stopping place for the night was Bangor, 155¾ miles from Coventry. Reliability was the keynote of the run throughout the whole journey. Very few incidents occurred, punctures during the first fifty miles being the only untoward occurrences. Of the twenty-three motor cycles and sidecars entered, all started except one. It is a notable fact that all completed the journey without serious trouble. Lunch on the outward journey was partaken of at the Old Royal Hotel, Llangollen, and tea at Pen-y-Gwrhyd, near the top of Llanberis Pass, which unfortunately was somewhat obscured by the heavy mist. The homeward journey was a go-as-you-please affair, members of the party returning by whichever route they pleased at their own pace The following members competed :

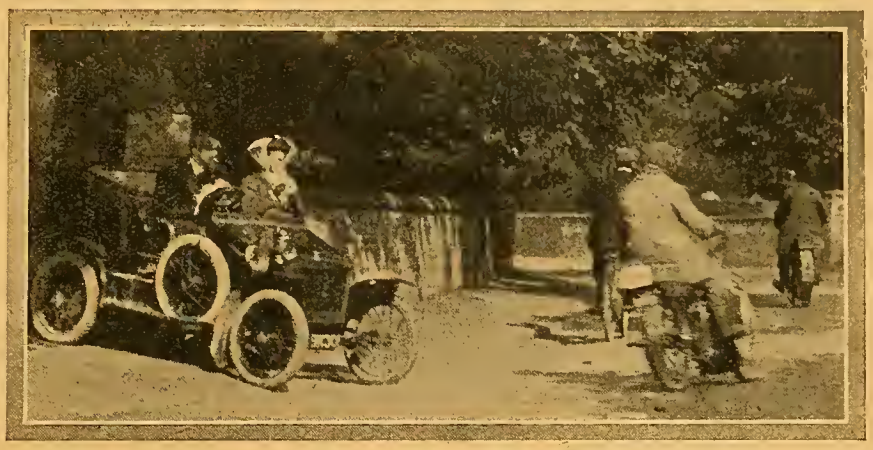
MOTOR CYCLES.

C. S. Burney (3½ de Havilland)	V. A. Holroyd (3½ Triumph)
G. T. Mills (3½ Triumph)	F. Pountney (4 Indian)
A. B. Jepson (3½ Triumph)	C. J. Hobson (3½ Triumph)
J. V. Pugh (3½ Triumph)	*E. W. Harris (3½ Excelsior)
M. Sampson (3½ Rex)	A. Elson (3½ Triumph)
J. F. Spencer (3½ Triumph)	T. C. Pearson (3½ Triumph)
S. H. Davis (3½ Rex)	A. L. Ommanney (3½ Triumph)
E. A. Gorton (5 Rex)	G. H. Spicer (3½ Triumph)
W. Hewitt, jun. (3½ Excelsior)	E. A. Isherwood (3½ Triumph)
*J. R. Haswell (3½ Triumph)	A. Wright (3½ Triumph)
C. S. Brown (3½ Triumph)	C. Moulder (3½ Triumph)

PASSENGER MOTOR CYCLES.

H. Williamson (5 h.p. Rex Sidette)	W. Montgomery (motor cycle and sidecar)

*Denotes that the journey was completed nearest to schedule time, ten hours, including luncheon and tea stops.



Coventry and Warwickshire M.C. run to North Wales. Competitors passing the surprise check (timekeeper: R. W. Duke) at Castle Bromwich.

Nottingham and District M.C.C.

A hundred miles non-stop reliability trial, starting and finishing at Normanton, took place on Saturday last. First prize is the Henry Bircumshaw gold medal, and the trial was also to select a team for the M.C.C. Team Trial on June 18th. The result was as follows: 1, W. H. Hadfield (3½ h.p. Triumph); 2, Claude H. Johnson (3½ h.p. Triumph); 3, J. Richards (3½ h.p. Brough); 4, B. W. Maltby (3½ h.p. Rex); 5, F. Birley Johnson (5 h.p. Matchless); 6, J. Fairburn (3½ h.p. Triumph); 7, G. Chudleigh Holmes (5-6 h.p. Roc); 8, J. D. Mitchell (3½ h.p. Triumph); 9, C. R. Smith (3½ h.p. C.C.R., Smith); 10, A. E. Lole (5-6 h.p. F.N.). George Brough (3½ h.p. Brough), punctured; F. Percy Johnson (7 h.p. Matchless), punctured; Arthur J. Pounder (3½ h.p. Triumph), skid, somersaulted; W. Reilly (3½ h.p. Triumph), skid, hedge bottom; R. George Toplis (3½ h.p. Triumph), stopped; J. King (2¾ h.p. twin Douglas), belt slipping, stopped on hill.

Sunderland and District M.C.C.

This club will hold its annual reliability trial for the Vaux Challenge Cup on Saturday next. The course is between Sunderland and Brough (Westmoreland) and back *viâ* Barnard Castle. It is being run in conjunction with the N.E.A.A. competition for their twelve guinea challenge cup.

Scene at the start from Broadgate, Coventry, of the Coventry and Warwickshire 10 hours run to North Wales. Every competitor completed the run.

Club News.—

Sutton Coldfield A.C.

The above club held a reliability trial of eighty-eight miles on Saturday last in order to choose a team of six riders to represent it in the M.C.C. Team Trial for *The Motor Cycle* cup. Ten members turned out, and the results were as follows:

H. C. Newman (3½ h.p. Ivy), non-stop.
P. Mosedale (3½ h.p. Centaur), non-stop.
Howard Smith (3½ h.p. Triumph), non-stop.
S. C. Perryman (3½ h.p. Ariel), filled up with petrol half a mile from finish.
J. St. John (3½ h.p. Centaur), mudguard stay broken.
W. D. South (5 h.p. Indian), tyre troubles.
R. N. Corah (3½ h.p. Corah), tyre troubles.
Seymour Smith (5 h.p. Norton), tyre troubles.
F. P. Mayell (3½ h.p. Triumph), magneto trouble.
S. Jones (Ivy), retired.

All the team, excepting the sidecar combination, will be picked from the above riders, and the club has decided to award silver commemoration medals to those who ride in the competition on June 18th.

York County M.C.C.

A hill-climb at Norwood Edge on the 28th ult., divided into three classes, resulted as follows:

CLASS I., FOR STANDARD TOURING SINGLES.

T. Clough (3½ h.p. Triumph) X
C. H. Benn (3½ h.p. Triumph) ... ... 1⅗s. more.
A. B. Bilbrough (3½ h.p. P. and M.) ... 5⅖s. ,,
R. W. Glenn (3½ h.p. Triumph) ... 7⅗s. ,,

CLASS II., FOR STANDARD TOURING TWINS.

F. C. Speke (7 h.p. S. and R.) X
N. Miers (5 h.p. Rex) ... ... 1⅕s. more.
A. Waterman (6 h.p. J.A.P.) ... ... 3⅖s. ,,

CLASS III., FOR T.T. AND SPECIAL MACHINES.

P. H. Cockroft (3½ h.p. T.T. Triumph) X
F. Scott (3½ h.p. Triumph) ... ... 6⅖s. more.
J. C. Bennett-Mitchell (3½ h.p. T.T. Rex) 7⅖s. ,,

The winner in each heat had to ride in the final, allowing any difference in his class time as a handicap.

FINAL.

F. C. Speke improved his previous time 3s.
T. Clough improved his previous time 1⅘s.
P. H. Cockroft lost ⅘s. on previous time.

Fastest time was made by P. H. Cockroft.

Dublin and District M.C.C.

On Saturday afternoon the first hill-climb of the season was held on the Long Hill leading over the shoulder of the Sugarloaf Mountain in Co. Wicklow. The prizes for the event were presented by C. B. Franklin, who consequently did not compete, but after the trial was over he made a successful attempt to lower his own record for the hill. Mounted on his 5 h.p. T.T. Indian, he covered the mile and a half over which the competitions are usually run in 2m. 10⅕s., as against 2m. 15⅕s., which he did on a 3½ h.p. Triumph last year. Result:

		Net Time. m. s.	Fig of Merit.
1.	J. Browne (3½ h.p. two-stroke Scott) ...	2 51⅘	... 218
2.	J. Langley (3½ h.p. Rex)	3 12⅕	... 249
3.	G. Tyson (3½ h.p. Triumph)	3 0⅗	... 255
4.	J. Healy (3½ h.p. Rex)	3 17⅖	... 271
5.	J. "Villecar" (2¾ h.p. Douglas) ...	3 35⅗	... 272
6.	A. E. Moran (3½ h.p. Triumph) ...	3 45	... 310
7.	J. Doleman (2¾ h.p. Douglas)	4 10⅖	... 323

Pembrokeshire A.C.

The result of the hill-climb at Arnold's Hill, near Haverfordwest, on May 26th, has just been announced as follows:

	Order on time.	Order on formula.
Eric Green (3½ h.p. T.T. Triumph) ...	1 ...	1
Ralph Green (3½ h.p. Rex Speed-King)	2 ...	2
D. Pantall (3½ h.p. Triumph)	7 ...	3
G. Carrow (3½ h.p. T.T. Triumph) ...	5 ...	4
Albert Thomas (3½ h.p. T.T. Triumph)	3 ...	5
Geo. Owen (3½ h.p. Triumph)	6 ...	6
Stanley Williams (3½ h.p. Rex Speed-King)	4 ...	7
Owain Thomas (3½ h.p. Triumph) ...	9 ...	8
R. Grant (3½ h.p. Triumph)	12 ...	9
G. James (A. Thomas) (3½ h.p. Triumph)	8 ...	10
Jones Parry (3½ h.p. Triumph)	10 ...	11
Howard Palmer (3½ h.p. Triumph) ...	11 ...	12
Francis Phillips (3½ h.p. Triumph) ...	15 ...	13
Owain Thomas (D.E. 174) (3½ h.p. Triumph)	14 ...	14
S. Davies (Jones Parry) (3½ h.p. Triumph)	13 ...	15

P. L. Lipscombe (3½ h.p. Triumph) fell; did not finish.

Oxford M.C.C.

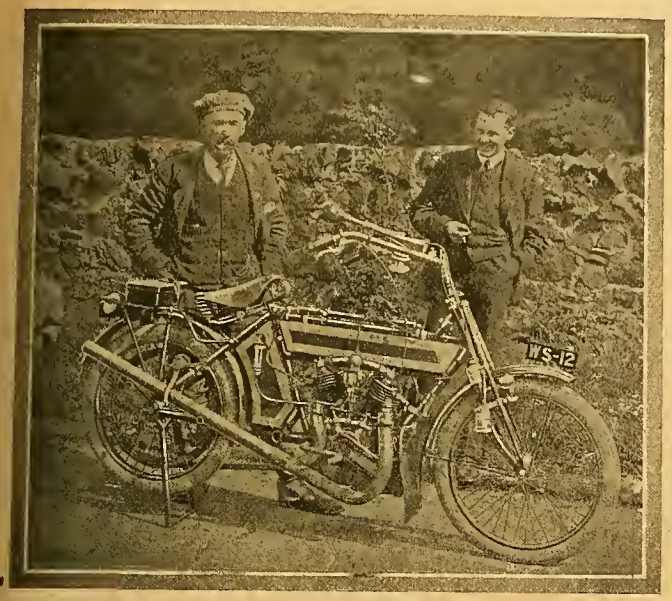
The inter-club contest with the Birmingham M.C.C. arranged for Saturday last was cancelled by Birmingham, because the latter club could not get a twin-cylinder team together. Consequently the Oxford Club held a sweepstake handicap among themselves. The handicap was based on the time of the first ascent, any competitor on the second attempt improving his time by more than two seconds to be disqualified. Result:

	First ascent. secs.	Second ascent. secs.
R. A. Bishop (5 h.p. Indian) ...	43 ...	41
W. A. Mathews (3½ h.p. Triumph)	43 ...	46
J. A. Betteridge (3½ h.p. Triumph)	44⅘ ...	42⅘
W. H. Wakefield (3½ h.p. Triumph)	45⅕ ...	48
E. Parker (8 h.p. Matchless) ...	54 ...	45
H. G. Hill (3½ h.p. Bradbury) ...	62 ...	43

R. A. Bishop and J. A. Betteridge therefore qualified for the final, the former eventually winning by 3 secs. H. G. Hill, having put right a magneto trouble, made a very fine ascent in 37⅖s.

Members of the Oxford M.C.C. at the foot of Irondown Hill on Saturday last prior to an impromptu hill climbing competition.

Club News.—



Something new in silencing arrangements on a 7 h.p. Pengeot. The exhaust pipes are large enough for a good-sized car engine. W. Sorley (vice-president of the Leith Motor Club) left, and J. T. Young (hon. sec.) on right.

Leith M.C.

The above club held a hill-climb, open to its members only, on Flotterstone Hill. T. E. B. Chalmers, riding a 5 h.p. Bat, made fastest time of the day. There were seven classes. Below are the results:

Class I.—Single-cylinder (handicap): Winner, J. Donaldson (3½ h.p. Bat).

Class II.—Twin-cylinder (handicap): Winner, T. E. B. Chalmers (5 h.p. Bat).

Class III.—"Old crock" class: Winner, D. Snadden (3½ h.p. Midget Bicar).

Class IV.—Single-cylinder (open): Winner, J. Donaldson (3½ h.p. Bat).

Class V.—Twin-cylinder (open): Winner, T. E. Chalmers (5 h.p. Bat).

Class VI.—Single-cylinder, novice (handicap): Winner, D. R. Kelly (3½ h.p. Triumph).

Class VII.—Multi-cylinder, novice (handicap): Winner, T. E. B. Chalmers (5 h.p. Bat).

Grimsby Marlborough M.C.C.

The above club was recently formed and members will be gladly enrolled. The subscription is 6s. per annum, and includes full use of the club premises, and affiliation to the Motor Union. The opening run will take place this (Thursday) evening, starting from headquarters, Marlborough Social Club, at seven o'clock. A run is also arranged for the 12th inst. to Skegness, starting from headquarters at 10.30 a.m.

Edinburgh M.C.C.

The Edinburgh Motor Cycling Club held an open reliability trial of 150 miles on Tuesday, the 24th ult. The first competitor was despatched from Fairmilehead at 9 a.m., the others following at one minute intervals. The route was by Leadburn, Tweedsmuir, and Moffat to Dumfries and back by Thornhill, Menock Pass, Crawford, and Biggar. One hour was allowed for lunch at Dumfries, and during that period competing machines were not allowed to be touched. The day was very fine, and the roads, except on the hills, were in good condition. A strong wind was blowing down the Menock Pass, and with the heavy gradient proved a good test for the very best machines. Five competitors received full marks:

N. Macmillan (3½ h.p. Scott)	100
R. A. Macmillan (5 h.p. Bat)	100
A. W. Moncrieff (4-cyl. F.N.)	100
J. D. Morrison (3½ h.p. Bat)	100
P. E. Tolfree (3½ h.p. Matchless)	100
R. White, jun. (3½ h.p. Triumph)	98
P. E. Phillips (3½ h.p. Bat)	70
W. Gerard (2¼ h.p. Enfield)	36
J. Gerard (3½ h.p. N.S.U.)	36

Three failed to finish.

Hertfordshire County A.C.

The speed-judging competition at Brickendonbury resulted as follows: 1st, A. H. Colliver (3½ h.p. Triumph); 2nd, Mrs. M. C. Cooke (3½ h.p. Triumph); 3rd, C. C. Cooke (3½ h.p. Triumph).

Sutton Coldfield A.C.

It has been decided to hold the mile speed trials on Monday morning, July 18th. Permission has been obtained to use a private road for the purpose, and it is therefore hoped that all members will turn out to support the events. There will most likely be five classes, and lightweight, touring, and T.T. machines will all be catered for. The event will be a "closed" one, therefore motor cyclists wishing to compete will have to become members of the club. Further particulars may be obtained from the hon. secretary, Mr. Howard Smith, the Dingle, Four Oaks.

Northern Inter-club Meet.

The Newcastle Motor Club arranged a run to Northallerton, on the 29th ult., when the opportunity was taken to make an inter-club meet.

The Bishop Auckland and District Motor Club, Middlesbrough Motor Cycle Club, Scarborough Motor Cycle Club, and the Newcastle Motor Club were represented.

Luncheon was partaken of at the Golden Lion Hotel, Northallerton.

After luncheon an informal conference was held at the Golden Lion Hotel, presided over by Mr. Parkin, of the Bishop Auckland and District Motor Club.

Mr. G. W. Liddle, of the Middlesbrough Motor Cycle Club, laid before the conference full details and the aims and objects of the Northern League of Motor Cyclists which is now being organised. Mr. Liddle pointed out that Northern motor cyclists had not been well catered for by the Auto Cycle Union, which body does not extend its usefulness in any energetic or business-like fashion to the Northern Counties, and the Northern motor cyclists have long felt the want of some large association or league to protect their interests. An invitation is extended to all clubs from York northwards to affiliate with the league, and motor cycle clubs in Scotland are asked to throw in their lot with the new body.

The first arrivals in the 150 Miles Reliability Trial of the Edinburgh M.C.C., the results of which are given on this page.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

The London-Edinburgh Run.

[4796.]—With the manager's permission, and on my promising to pay a switch man for sitting up, I was able to have the electric arc lamps burning during the early hours the men came through Stamford, which no doubt they appreciated when encountering the three awkward turns in the town. Several of us sat up to guide the competitors, who were going great guns. J. FANCOURT.

Cure for Stretching of Leather Belts.

[4797.]—Regarding a cure for stretching of leather belts in a recent issue, by fixing a cycle chain on the outside of the belt, the same result can be attained in a neater way by riveting an ordinary American eight-day clock spring, about §in. wide, on the outside centre of the belt. Copper rivets should be used, and spaced about every six inches. This effectually cured a belt which was continually jumping off the pulley. W. HEMSWORTH.

Increase of Speed on Partially Raising the Exhaust Valve.

[4798.]—With reference to "Try Again's" letter on his increase of speed on raising his exhaust valve, might I suggest that if he replaced the present tappet lifting the valve with one which would give a longer lift, his difficulty would be overcome. I believe it is a recognised fact that the best speed results are given when the exhaust valve is raised to the fullest possible extent on the occasion of each exhaust being expelled, thereby giving the easiest and quickest access to the air of the spent gases. The above suggestion gave satisfactory results with a 1906 Triumph belonging to a friend of mine. A BARROVIAN.

Hill-climbing.

[4799.]—Referring to Mr. D. R. Greis's letter *re* Socombe Hill, on the Caterham Road, I know this very steep hill, and, therefore, must congratulate him on his climbing it on a single-geared single cylinder pedalless machine.

Some months ago I rode up it on my 1910 Phelon and Moore, but what cannot a P. and M. climb? I think it is the stiffest hill I have been up so far, being a good deal worse than Cudham.

Shortly afterwards I read in one of the testimonials in an old 1908 Triumph catalogue that a 1907 Triumph had got up with pedalling, and a 1908 without, so we are both too late to be the first. C. A. CROW.

Inter-club Meets.

[4800.]—I think that it would be a splendid idea if a meeting of the motor cyclists in the Southern districts could be arranged at a near date. We hear of motor cyclists meeting in the Northern counties of England, and of having a very enjoyable time. I think it would be a grand opportunity for motor cyclists in general to meet and discuss matters concerning their welfare and things in general and possibly it might be arranged to hold a competition.

Should you think it worth while bringing it before your readers, I should be very pleased to discuss the matter further with any clubs desirous of participating.

R. S. H.

P.S.—When I mention Southern counties, I refer to those lying south of the Thames, *i.e.*, Kent, Sussex, Surrey, Hampshire, etc. There are a number of clubs in this part of the world who would doubtless be glad to arrange such a meeting.

Portable Sheds and County Council Regulations.

[4801.]—*Re* query in a recent issue of housing a motor cycle, I thought it would be interesting to your readers to hear of my trouble with the L.C.C. over a portable shed.

Last June I erected a portable shed in my back garden, against the back fence, which is over 26ft. from any building. In October I heard from the district surveyor, telling me I must obtain a licence for erection of shed from the L.C.C. I sent in my application for same and received from them a copy of the Council's regulations, stating I must have three plans made out, sending two with fee of 5s. to them on application, and the third plan with a further fee of 5s. if my application were accepted.

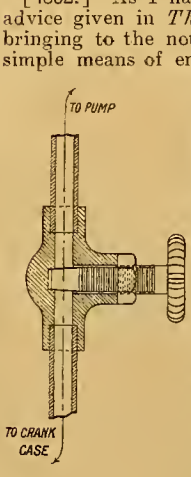
I conformed to the regulations, and on 30th November received a letter stating the plans must be amended to show corrugated iron sides and roofing, and floor of solid substance, and that this if done must be passed by the district surveyor. On receipt of this I told them that as my tenancy was likely to expire in June I should be glad if they would licence the shed as it stood or with the alteration of a corrugated iron roof only, as it was lit by electricity and no petrol was kept on the premises.

Last February I heard from the Council that the committee would grant me a licence for the wooden building for six months, but would not grant it for any further period. From that date until the evening of May 26th I had heard nothing; by the last post that day I received a letter from the Council's solicitor stating I must do as they require or remove the shed.

I might say that the shed is 8ft. by 6ft., which means that it is over 18ft. from the house. SHED.

To Ensure Regular Lubrication.

[4802.]—As I have profited so frequently by the tips and advice given in *The Motor Cycle*, I have much pleasure in bringing to the notice of other motor cyclists the following simple means of ensuring a gradual and sure lubrication of the engine, which I have tried and found quite successful. I had previously fitted a sight feed lubricator, but did not find it easy to obtain a sure rate of feed, which varied according to circumstances (quality of oil, etc.), since the drops cannot be seen while running. I therefore tried a compromise by fitting a small screw stop cock in the oil pipe between pump and crank case, as per sketch herewith. This cock can be adjusted (and fixed by check nut) to allow a given quantity of oil to pass to the crank case in a given time; mine is adjusted to pass rather less than half a pumpful in about ten miles. The pump (a tapless Peugeot) is raised to fill the barrel with the desired quantity, the usual tap handle then turned to shut off oil from the tank, and the engine gradually takes what is in the barrel according to the amount of opening of the stop cock. An occasional glance at the (glass) pump barrel shows at once whether oil is passing to the crank case too quickly or otherwise. The diameter of the hole through the stop cock is equal to the inside diameter of the oil pipe, so that by unscrewing the plug the pump can be used full bore if desired. E. RYE.



[A very similar device used on 1910 pattern Norton motor cycles was described on page 457, May 19th.—ED.]

Motor Cycles for Sidecar Work.

[4803.]—As there has been considerable correspondence in your columns as to what different motor cycles are capable of doing when put to sidecar work, and the best cycle for this work, I thought it would be of interest to some of your many readers to hear my own experience. Both my wife and myself are very fond of travelling in this way, but our enjoyment was always more or less spoilt by having to dismount on some very bad hills around Nottingham and Derby (the machine I owned at that time being a fixed single gear), but some weeks ago I purchased a 1910 two-speed Humber, attached it to the same sidecar, and we made up our minds for a tour in the South of England during the Whitsuntide holidays.

We commenced our tour on the Thursday before Whitsuntide, and arrived home the following Thursday, after doing over 800 miles, going through Loughborough, Leicester, Coventry, Tewkesbury, Gloucester, Bristol, Exeter, Plymouth, Bodmin, Truro, Penzance, Torquay, Dawlish, Teignmouth, Salisbury, Banbury, and Oxford, and home through Leicester. The trip was the most enjoyable we ever experienced, having no trouble whatever the whole of the way, and what is more, mounting the whole of the hills with comfort.

It will perhaps be of interest to some of your married readers to know that our little baby girl of eight months did the entire journey in my wife's arms, and fared none the worse for the trip.

Our total weight was: Self twelve stones, wife and baby ten and a half stones, luggage about two stones. The roads from Bristol to Exeter were in a wretched condition owing to the recent heavy rains, but the machine never faltered even on the worst hills. The amount of petrol used averaged just over eighty miles to the gallon. I am sure that if any of your readers are thinking of purchasing a cycle for sidecar work they will do well to choose one with free engine and two-speed gear, as I consider it the most essential feature both for ease of starting and hill-climbing; in fact, I did not know the pleasure of motor cycling until I purchased the present machine. Wishing your valuable paper every success,

AR. DOCKING.

A Three-wheeled Runabout.

[4804.]—As you have published particulars from time to time of several tricars and runabouts made by amateur readers of *The Motor Cycle*, perhaps photographs [Reproduced below.—ED.] of my 3 h.p. tricar runabout would be of interest. It has an engine with water-cooled head, belt drive, Mabon clutch, weight about 250 lbs., made by my brother and self from parts bought through the miscellaneous advertisement columns of your paper. I may add we were nearly two years collecting parts, as it was all put together in spare time. The machine was designed by Mr. H. D. Boultbee (for some time in the Wolseley-Siddeley Motor Co.'s works) just two years ago. It is single-geared, 5 to 1, and will do 20 m.p.h., but of course will not climb many hills with the present gear. The machine would of course be much improved by the addition of a variable gear.

ARTHUR C. CLAXTON.

A Strange Experience.

[4805.]—I recently noticed that, after passing over several miles of freshly tarred roads, there was a heavy deposit of tar between the points of my plugs. I at first thought it was simply black oil, but on closer inspection found it to be composed almost wholly of tar. I am using automatic lubrication, so that there is little or no chance of over lubrication. I should be interested to hear whether any other readers have suffered from the same complaint.

E. P. T.

[Our correspondent does not state the condition of the exterior of his engine, or his clothes, after the above experience.—ED.]

Change of Ownership.

[4806.]—We wish to impress upon your readers the importance of notifying the police of change of ownership when disposing of their machines. We purchased a machine last December, and for inadvertently neglecting to comply with certain requirements, we—along with our client—were summoned by the police, and in consequence had to hand over a part of our hard-earned savings. We understand more prosecutions are pending, so beware. Even if you sold your machine months ago, take the necessary steps to have number cancelled at once, and profit by our experience.

BOOTH'S MOTORIES.

Delay in Execution of Orders.

[4807.]—I feel it to be only fair to a firm that has treated me most splendidly to write to your columns pointing out that your correspondent 4756 must have fallen into evil hands. I did not see letter 4730, but gather that he, too, has received the scant—or rather total lack of—civility sometimes found with manufacturers of motor cycles. It is by no means so with the firm I have recently dealt with. I have an Arno motor cycle, and a short time ago I had a slight accident about fifty miles from the Arno Co.'s offices. I telephoned the firm, and within a few hours I not only had the required part but one of the company's men to put me right on my journey again. This is a typical instance of the way in which the Arno Co. treats its customers. C.W.I.

EXPERIENCES WANTED.

"G.L.N." (Arbroath) would be glad of readers' experiences with the single-cylinder Moto-Rêve, particularly with respect to hill climbing and reliability.

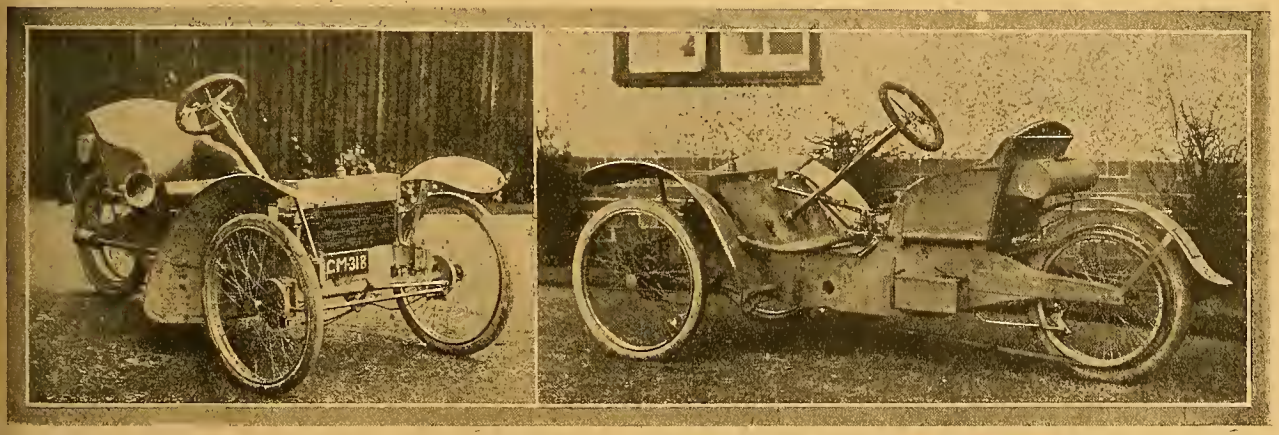
"J.A.H." (Muswell Hill) would like to have readers' experiences of the P. and M. motor cycle using J.A.P. drip feed lubricator. Is it a success?

"W." (Poole) would be pleased to hear of any users' experiences of the Griffin-Simplex gear with sidecar.

"W. S. J." would like to hear of users' experiences of the Griffin-Simplex two-speed gear.

SUMMARY OF CORRESPONDENCE.

"G.W." (Haywards Heath) would be glad to hear from another motor cyclist, preferably a rider of a lightweight, respecting a ten days' tour in Scotland in June or July.



A light three-wheeled runabout described in a letter from Arthur C. Claxton, which appears on this page.

OCCASIONAL COMMENTS.

By "IXION."

The End-to-end Sidecar Record.

While I write, a well-known rider is having a dash at the End-to-end record with a single-geared 3½ h.p. motor bicycle, a sidecar, and an eight-stone passenger. I do not know how he has progressed at the moment, but here's luck to him, though I shall regard his performance as little short of phenomenal if he succeeds. I only wish to emphasise the advance betokened by the mere idea of attempting such a feat. Five years ago we thought it a magnificent performance to cover the same distance in a longer time with a solo motor bicycle of the same power.

To-day there is probably no gradient up which a well-tuned 3½ h.p. machine cannot carry a thirteen-stone rider if its adjustable pulley be screwed right out. My own machine, temporarily geared down to 6½ to 1, will take fifteen stones of dead weight up 1 in 4 very comfortably indeed with a slow start. A very few years ago no sidecar had ever got through the London-Edinburgh ride, though the road is practically flat throughout its entire distance, and machines of high power with variable gears had essayed the task.

The rider mentioned is quite confident, though a little doubtful as to how long the southern bank of Berriedale may take him, if his passenger has to walk the whole of it; some Scotsman comforted him with the information that half-way up, a switch road has been constructed to accommodate cars if their brakes fail on the headlong descent, so that if his engine dies away after the cornersome foothills, he can get a magnificent start again by pushing a little way up the switch road.

Hard Luck, Bashall!

There was nobody I felt so sorry for in the T.T. as W. H. Bashall. In the past he has gained a reputation rather for dash than for that added spice of steadiness which ensures a finish, but this year he was out to finish and to finish first. He had trained like a pugilist, and in his first four laps he exhibited all his old devil and daring, with just that correct ingredient of restraint which hallmarks a man as a first-class racer. He left the extra risks to Bowen, and in spite of that was only fractionally behind him when evil luck destroyed his machine, and he himself narrowly escaped serious injury by burning. Next year I hope all makers may be trusted to make a conflagration impossible, especially if the A.C.U. allow attendants to fill the tanks. I should say some mechanical device rendering overfilling impossible is almost as necessary as a pair of steady hands.

Why the Colliers Win.

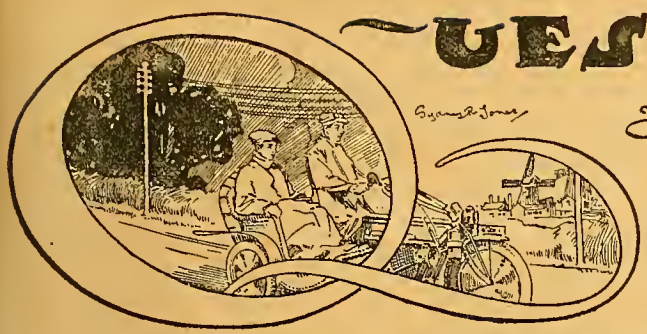
First of all, they ride as a team. Charlie goes sufficiently near all out to keep in the very first flight. He aims at being within two minutes of the leader at half the distance whatever happens. If the race produces a dark horse who can go faster than Charlie wants to, Charlie will accelerate at half time, and cut out the work as was never done before. A few minutes behind him looms brother Harry, riding a half and half race, if circumstances allow, fast, of course, but with a bit more in reserve, a few risks postponed, a notch or so of throttle in reserve; if Charlie falls out, as, thanks to a faulty belt link, was the case last year, Harry moves up one in the team and takes all the risks. Behind the pair rides Colver, less of the born speed merchant, no doubt, but genuine hot stuff none the less. He takes the slowest machine of the bunch (if the engines vary a trifle), and rides a finishing race, stepping up in the take-all-risks place only if both the famous brothers drop out, which has never happened yet. Something precedes all this; every single detail is put through the most gruelling tests imaginable. If a suitable fitting cannot be bought from stock it is made, and made early enough for tests; and every conceivable contingency guarded against. For instance, no machines were so totally weatherproof as the Matchless with rain-proofed magnetos, sparking plug covers, and belt guards. Last, but not least, nobody can beat this trio at tuning an engine. Everybody expects them to win the twin-cylinder class next year, and their rivals will have to get up early if they hope merely to hunt the Colliers home.

W. F. Newsome, who, riding a 3½ h.p Triumph, surprised everyone by making fastest time in the Snaefell hill climb, beating all the multi-cylinder machines.

Pace in the T.T.

A study of the lap times will show the careful reader how finely a rider must cut things to obtain a high place in the race.

There is only a slight difference between each pair of lap times, yet Collier was first and Fowler fifteenth, thirty-eight minutes behind the Matchless crack. Fowler's times are fast all through, his worst lap being his fifth, in which he evidently changed a belt or a valve, or something of the sort, and even in this his gross time for the 15m. 1f. works out at considerably better than 30 m.p.h. Very few riders, if they were given the closed course to themselves and Bowen's Bat to ride, could manage one lap in nineteen minutes within their first day's practice. Yet to win they must ride faster than this, including waiting for a chance to pass rivals, and two stoppages to replenish.



QUESTIONS AND REPLIES

A selection of questions of general interest received from our readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, **must be accompanied by a stamped addressed envelope for reply.**

Gear Ratio.

I have just purchased a second-hand motor bicycle (3 h.p. Bradbury) with a gear of 4⅝ to 1. I find it is not so good as my last 2¾ h.p. for towing a passenger on slight hills. It has a good speed on the level, and is fast on hills alone. Could you let me know a more satisfactory gear for this work, and perhaps occasional sidecar work?—S. H.

A gear of 5¼ or 5½ to 1 would be more suitable for your purpose. The best plan would be to fit an adjustable pulley (or change speed gear, if you can afford it), so that you may vary the gear and determine the most suitable ratio. At the same time, we may point out that 3 h.p. is insufficient for passenger work, and will never be a success on hills.

Calculating Gear Ratio.

I should be much obliged if you could tell me the method which is used to calculate the gear ratio between pulley and road wheel. Also, supposing the gear is of the chain variety, whether the top diameter or pitch diameter is considered?—S. A.

The method of calculating the gear ratio when machine is fitted with chain drive and counter-shaft is as follows: Multiply the number of teeth on the driving wheels together and the number of teeth on the driven wheels. Divide the smaller figure into the larger, and the result is the gear ratio. Pitch line and top diameter are not taken into account, only the number of teeth.

Adjustment of Two-speed Gear Control.

I shall be much obliged by your advice on the following points. My machine is a 1909 Humber, with Roc clutch and two-speed gear. I find the clutch has a tendency to slip, so that I have to keep the high speed pedal pressed down with my foot while running. Is it possible to take this up, and how? (2.) It is very difficult to force grease into the back hub; will it do any harm to warm the grease before pumping it in? (3.) Should I oil or otherwise treat the band brake on the rear hub? I see the hub is wearing bright under the band. (4.) I use a sidecar with the machine and can get up Wrotham Hill with an eleven stone passenger. Can you tell me any means of testing whether the sidecar is in correct alignment with the machine? I may add that I bought the machine new three weeks ago through an advertisement in your columns. I had never before ridden or even handled a motor cycle, and I think it speaks well for the machine that I have had no trouble of any kind, and not a single involuntary stop.—G.P.

(1.) Certainly it is possible to adjust the brake bands. A correspondent named Macintyre on February 21st (page 155) advised readers to fit a powerful coil spring midway along the rod which operates the high gear; this may improve the adjustment. (2.) No harm will be done by warming the grease if you allow time for it to solidify after pumping it in. Why not write to Humber, Ltd., Coventry, and ask them to supply you with a grease squirt with wooden plunger as illustrated in *The Motor Cycle* of April 28th, page 382? (3.) Instructions *re* oiling band brake were given in *The Motor Cycle* of February 21st, page 155. (4.) To test whether the sidecar is in correct alignment with the bicycle, measure the distance from centre of tread of back wheel tyre to centre of tread of sidecar wheel tyre at the rear, and from centre of tread of front wheel of bicycle to centre of tyre of sidecar wheel in the front. Use a straight edge made out of a long piece of wood planed true or a tape measure.

Starting a Twin-cylinder Machine and Sidecar.

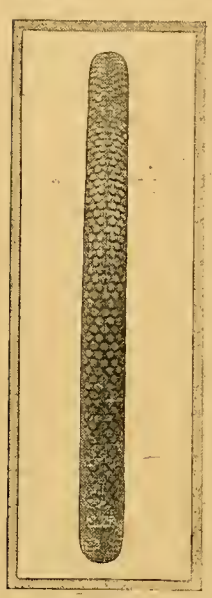
My 5 h.p. twin with 4½ to 1 single gear picks up speed with jumps and jerks, which is very uncomfortable, and it sometimes stops if I do not pedal it into a quicker speed. It only does this with sidecar. When I get up speed it will take sidecar and twenty stones up hills that some singles will not look at. The specification is B. and B. carburetter, Bosch magneto. Everything seems in perfect condition. Compression good.—B. A. R.

You do not say if your engine has automatic or mechanically operated inlet valves. If the former, the difficulty may be due to the inlet valve springs being slightly too strong. If the latter, carburation is most likely at fault; that is to say, the carburetter does not provide a strong enough mixture at very slow speeds. This is always more apparent with a sidecar or other passenger attachment, because the speed is not so fast at starting as it is with a single-seated bicycle. If your engine has mechanically operated valves and everything is in perfect order elsewhere we should advise you to try a slightly smaller adapter in the carburetter. The 1910 B. and B. has a detachable adapter, and smaller ones can be supplied by the makers, Brown and Barlow, Holt Street, Birmingham.

The T.T. week. General view of the start of the six miles climb up Snaefell, which is a most strenuous test.

The Latest Goodrich Tyre.

The accompanying illustration is that of the latest Goodrich tyre for motor cycles, which we have just been testing on one of our machines. The tyre is well made with closely grouped rows of rubber studs which secure a very good grip on a slippery surface without materially reducing the speed of the tyre; in fact, the Goodrich is one of the fastest motor cycle tyres we have tried. The cover, like most good tyres, is moulded and vulcanised with the fabric bedded well into the rubber, hand-made tyres being unsuitable for motor work.



With regard to the question of speed, most riders know that there is a great difference in the speed of the same make machines fitted with various makes and qualities of tyres. There is no question, however, about the speed of the Goodrich. It is lively and fast, and our experience of it so far is that it wears well. The makers will be pleased to send full particulars of all their motor cycle tyres to anyone applying for same to the B. F. Goodrich Co., Ltd., 7, Snow Hill, E.C., and will also give advice as to the various rims which their tyre will fit.

T.T. Notes.

The fastest lap time in the T.T. Race (17m. 51s.) was made by Bowen on a Bat shod with ROM tyres. The first eight single-cylinder machines to finish the T.T. Race (all Triumphs) were shod with Dunlop tyres. Thirty out of seventy-two starters used Continentals.

In Class 5 of the A.C.U. Snaefell climb, J. Scriven was second, riding a 4 h.p. twin m.o.i.v. Rex, shod with Continental tyres. He used a Lyso belt.

The first to the fourth and the sixth and tenth competitors to finish used Shamrock Gloria belts, as also did H. H. Bowen. It is worthy of note that S.G. belts were fitted to the winning machines in 1908, 1909, and 1910.

Price's oils were used by twenty-five out of the twenty-nine competitors that finished in the above contest. Price's Patent Candle Co., Ltd., Battersea, S.W., attribute their success very largely to the fact that they have made a careful study of the lubrication of motor cycles, used for various purposes, so that they were in a position to offer lubricants specially adapted for the different makes. Their heaviest grade of oil was used on the J.A.P. engines, whilst the Triumph engines, on the other hand, were lubricated with a very light, but highly super-fatted compound, specially prepared for the purpose.

The Hutchinson tyres used by the Bros. Collier came through the race with flying colours. One day last week we visited the offices of the Hutchinson Tyre Co., Basinghall Street, E.C., and there saw the actual pairs of covers used by the winner and his brother. Both rear covers have the corrugations completely worn off, and are slightly more worn on the inside than on the outside, but there is not a cut to be seen on their surfaces. Both front covers are in perfect condition, and show absolutely no signs of wear. The tyres used have a number of fine corrugations on the tread, and are known as the Brooklands type Tourist Trophy pattern.

SPARKLETS

Importance of Good Tyres.

Kempshall tyres have figured prominently in most of the important trials which have been held so far this year.

The P. and M. machine fitted with Kempshalls depicted in the accompanying illustration with its driver, Mr. W. Pratt, scored in the January and Spring Quarterly Trials, the same machine and tyres being used in the run from London to Harrogate, when the same rider won a silver cup.

In the London to Edinburgh run Kempshall tyres were fitted to four of the successful machines. These machines went through from London to Edinburgh without a puncture and with absolutely no trouble whatsoever. One of the four completed the return from Edinburgh with no puncture or tyre trouble.

Change of Address.

Expansion of business has necessitated an increase in the size of the premises of the Roc Motor Works. Enquiries should in future be addressed to A. W. Wall, Ltd., Roc Motor Works, Tyseley, Birmingham.

Electric Lamps.

We may remind those motor cyclists who depend on an electric lamp alone that J. W. Greenwood and Co., Portland Place Works, Halifax, make a special lamp for motor cyclists called the Glare. It was used by several riders in the London-Edinburgh, who we are informed, had not the slightest trouble the whole time.

A New Lubricating Oil.

Messrs. Wakefield are now specially catering for motor cyclists, having introduced their lubricating oils in half-gallon and one gallon cans at very moderate prices. These can be obtained from any local agent. The quality of this oil is illustrated by the fact that Harry Martin used it when he broke the five miles flying start record at Canning Town.

A British Success.

Geo. Brough used a Simms British-made magneto when he won the M.C.C. challenge cup in the London-Edinburgh and back trial. A photograph of the rider and his machine (a 3½ h.p. Brough) appeared in last week's issue, page 515.

The Largest Indiarubber Manufacturers in the British Empire.

Amongst the exhibitors in the British Section at the Brussels International Exhibition will be found the North British Rubber Co., Ltd., of Castle Mills, Edinburgh, who claim to be the largest indiarubber manufacturers in the British Empire. This firm, who are manufacturers of the Clincher tyres, have a very representative exhibit.

Riding Equipment.

The Express Rubber Co., Great Eastern Street, E.C., have lately placed on the market a very sensible set of leg overalls. It will be seen from the accompanying illustration that they are provided with a strap, which fastens them round the lower part of the body, and they have an extension which fastens round the neck completely protecting the rider's chest. In summer weather the extension may be folded up and tucked inside. It will be seen that these overalls adequately protect the rider from wet. The other illustration shows a complete outfit. The price is not much in excess of the ordinary leg overalls.

Overalls and complete suiting made by the Express Rubber Co.

TOURIST TROPHY RACE.

1st C. R. Collier using **AMAC** Carburetter

2nd H. A. Collier using **AMAC** Carburetter

1st LAP 4 riders out of the seven fastest using **AMAC**

2nd LAP 4 riders out of the six fastest using **AMAC**

3rd LAP 3 riders out of the seven fastest using **AMAC**

THE 10 RIDERS DOING THE FASTEST LAP TIMES IN ALL THE RACE USED

AMAC.

THIS SPEAKS FOR ITSELF.

Stipulate AMAC Carburetter on your new machine.

Aston Motor Accessories Co., Ltd.,
Talford Works, **BIRMINGHAM.**

THE

LODGE

SPARKING PLUG,

DESIGNED FOR MAXIMUM POWER.

Barnack, Stamford,
May 25th, 1910.

Messrs. Lodge Bros. & Co., Birmingham.

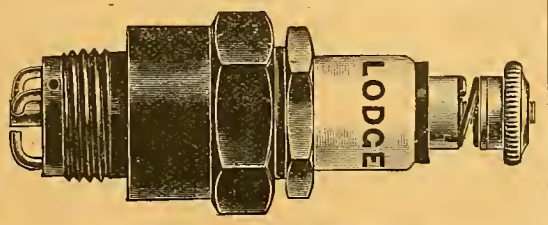
Dear Sirs,—The Lodge plug fitted to my lightweight Motor Cycle in the recent London-Edinboro' and back run gave perfect satisfaction.

This plug was fitted the day previous to the run and never touched until I arrived home on the Tuesday following, after having covered over 1,000 miles without a misfire.

Other lightweight riders could not have used your plugs, as they had their pockets full, and were continually changing them.

Make what use of this you like, as I know of no other plug to equal the Lodge, and it may help other riders out of trouble.

Yours faithfully,
(Signed) A. WEBSTER.



PRICE **4/-** EACH.

LODGE BROS. & CO., Dept. E., 14, New St., **Birmingham.**

Flying

THE WHY AND WHEREFORE.

¶ Motor Cyclists who follow the subject of aeronautics should read "Flying," a breezy non-technical book for amateurs dealing with the first principles of human flight by means of aeroplanes.

¶ Clearly illustrated with photographs and drawings.

On Sale at all Booksellers,

Price 1/- net,

or post paid 1/2, from

ILIFFE & SONS Ltd., 20, Tudor St., E.C.

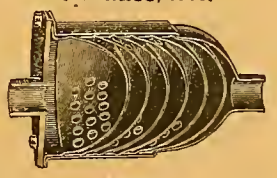
SILENCE IS GOLDEN.

THE "CLAIR" SILENCER.

The Silencer and Brake Tests.
The silencer and brake tests took place on Wednesday ..... the men must fit efficient brakes if they value their necks and their chance of winning, while the less said about some of the silencers (?) the better.

Vide Press Reports, T.T. Race, 1910.

No need for this result.



When you can have this result.

Silence.

I can corroborate all previous letters *re* the Clair silencer. Some three months ago I fitted one of these to my 4 h.p. Bat, and as in Mr. C. Lake's case, my machine is ninety per cent. quieter than formerly. That awful, nerve-destroying, Gatling gun effect is entirely eliminated, and one can now distinctly hear the valves closing. To prove its efficacy one has only to open the cut-out.

I scarcely need add I have no interest in the makers beyond being a SATISFIED PURCHASER.

Sole Manufacturers— 1¼ to 150 h.p. (Patent).

J. C. LYELL & CO., LTD., 53, Victoria St., LONDON.

Telephone—2469 Gerrard. Telegrams—"Electrinus, London."

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

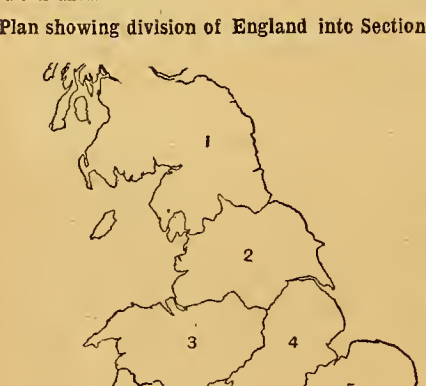
All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.



SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

WAUCHOPE'S

GUARANTEED BARGAINS.

The Greatest Bargains in Second-hand Motor Cycles on this earth are offered by WAUCHOPE'S, 9, Shoe Lane, Fleet Street, London, E.C. Inspection is cordially Invited.

No. 2512.—7 h.p. V.S., 1909 model, two-speed gear and free engine, Truffault forks, magneto ignition, some 1910 improvements; original cost £67; extras, as Collier's silencers, separate generator lamps, Brooks' spring seat; lowest for machine complete, **42 Guineas.** Guaranteed. At Wauchope's.

No. 2525.—3½ h.p. BAT-J.A.P. Racer; Mr. Bowen's 1910 Bat racer, winner of the 1 hour record, 59½ m.p.h., 85×85, just as new, unprecedented bargain; **38 Guineas.** Guaranteed. Wauchope's, 9, Shoe Lane, Fleet Street, London, E.C.

No. 2509.—3½ h.p. T.T. TRIUMPH, 1909 model, 1910 engine, 85×88 Rom steel-studded non-skids both wheels, winner of two hill-climbs; price **£38.** Guaranteed. At Wauchope's.

No. 2046.—2¼ h.p. ARIEL, 1909 model, magneto ignition, vertical engine, not ridden 250 miles; lowest cash **£23.** Guaranteed. At Wauchope's.

No. 2503.—3½ h.p. 1910 BAT standard model, only used on three short runs, previous owner requiring passenger machine; price **£38.** Guaranteed.

No. 1857.—3½ h.p. BROWN, 1909 model, magneto, two-speed gear, chain drive; **18 Guineas.** Opportunity.

No. 2487.—3½ h.p. MINERVA, 1908 model, magneto ignition, good sterling second-hand machine; **18 Guineas.** Guaranteed. At Wauchope's.

No. 2478.—7-8 h.p. 1910 BAT, J.A.P. engine, twin, M.O.V., several extras; original cost £65: special price to clear, **45 Guineas.** Guaranteed. At Wauchope's.

No. 2450.—2¾ h.p. BROWN, vertical engine, smart-looking machine, and guaranteed; price **£7 10s.**

No. 2238.—3½ h.p. New L.M.C., free engine, M.O.V. model; immediate delivery: cash or exchange.

3½ h.p. 1910 New ZENITH GRADUA; immediate delivery from stock; cash or exchange.

No. 2441.—3 h.p. ROC, magneto, free-engine clutch, low built; price **£13 10s.** Guaranteed running order.

No. 2039.—3½ h.p. 1909 ROC, two-speed model, in new condition, Dunlop non-skids both wheels, lamp, horn; **£38.** Guaranteed.

No. 2476.—2¾ h.p. MINERVA, M.O.V., standard model; price **£10 10s.** Guaranteed.

No. 2127.—4 h.p. ANTOINE, powerful machine, single cycle sidecar machine; **£14.** Guaranteed.

No. 2480.—5 h.p. Four-cylinder BINKS, low chain drive; **£1S.**

No. 2248.—2½ h.p. BRADBURY, 1903 model, in new condition; **£12 10s.** Guaranteed.

No. 2286.—3½ h.p. MINERVA, Chater-Lea fittings, accumulator ignition, Brooks' saddle; **£8 10s.** Guaranteed.

No. 2416.—5 h.p. REX, magneto, sidecar, lamp, horn; the complete turnout at **£2S.** Guaranteed.

3½ h.p. 1908 TRIUMPH, non-skids both wheels, horn, in very nice condition. Offers. Guaranteed.

10-12 h.p. LAGONDA Tricar, open frame, coach-built, water-cooled, two-speed, reverse; **£32.**

4½ h.p. Twin-cylinder MINERVA, 1908 model, in special good condition; price **20 Guineas.** Guaranteed.

3½ h.p. 1907 TRIUMPH, horn, lamp, tools; **£22.** Guaranteed.

No. 2501.—3⅜ h.p. REX, in good running order; **£7 10s.** Guaranteed.

No. 2507.—3½ h.p. TRIUMPH, in good running order; price **£12 10s.** Guaranteed.

No. 2485.—3½ h.p. CHASE, serviceable machine, vertical engine, smart and fast; **£12 10s.** Guaranteed.

1½ h.p. Complete MOTOSACOCHE Motor Set, all ready to fit to strong pedal machine; price **£8 10s.** the set complete. Guaranteed

No. 2473.—2¾ h.p. F.N. Runabout, magneto, two-speed gear, 1910 model, three wheels, shaft-driven, perfect, as new; price **£38.** Guaranteed.

No. 2247.—3½ h.p. VINDEC SPECIAL, magneto ignition, Truffault spring forks, nice condition; price **£12 10s.** Guaranteed.

No. 2475.—5-6 h.p. F.N., four-cylinder model, rubber-studded tyre, a good, sound second-hand motor cycle; **£2S.** Guaranteed.

2¾ h.p. Model C DOUGLAS, new, in crate; **38 Gns.** Immediate delivery from stock.

MILLS AND FULFORD'S new 1910 Sidecars. Immediate delivery from stock of Radial Castor Sidecars and Spring Wheel models.

WAUCHOPE'S, 9, SHOE LANE, FLEET ST. LONDON, E.C.

'Phone, 5777 Holborn. Telegrams: "Opificer, Londoo."

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may addressed to numbers at "The Motor Cycle" Of When this is desired, 2d. will be charged for registra and three stamped and addressed envelopes must be for forwarding replies. Only the number will appea the advertisement. Replies should be addressed, " oco, c/o 'The Motor Cycle,' Coventry"; or if "Lond is added to the address, then to the number given "The Motor Cycle," 20 Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown per may deal in perfect safety by availing themselves of Deposit System. If the money be deposited with " Motor Cycle," both parties are advised of this receipt, upon intimation of the arrival and acceptance of goods, the money is forwarded less a charge of 1s. registration. The time allowed for a decision after rec of the goods is three days, and if no sale is effected, e party to the transaction pays carriage one way. For transactions exceeding £10 in value, a deposit fee 2s. 6d. is charged. All deposit matters are dealt v at Coventry, and cheques and money orders should made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive answer to their enquiries are requested to regard silence as an indication that the goods advertised h already been disposed of. Advertisers often receive many enquiries that it is quite impossible to reply to e one by post.

MOTOR BICYCLES FOR SALE

SECTION I.

Northumberland, Cumberland, Durham, a Westmoreland.

1910 Triumphs ready for delivery; £48 18s., with P. and M. two-speed £56.—Walker's.

1910 Phelon and Moores for early delivery.—Walke Cycle Works, Ferryhill, Durham.

£3.—2h.p. Minerva, less cylinder, good condition.— Freeman, Hartburn Lodge, Stockton-on-Tees.

REX de Luxe, 1909, 5h.p. twin, Roc clutch, two-sp gear; £36.—Lindberg, Rectory Drive, Gosfor Northumberland.

3½ h.p. Brown, good condition, two expanding pulle bargain, £19 10s.—J. M. Hall, J. Burne, en neers, Appleby, Westmoreland.

HUMBER, 3½h.p., Roc two-speed gear, 1909 patte little used, good hill-climber; £30.—Can be s and tried, Dean's Garage, Carnforth.

QUADRANT, 3½h.p., Roc two-speed gear, 1908 p tern, very low frame, spring forks, magneto; £2 trial by appointment.—Dean's Garage, Carnforth.

FOR Sale, 2¼h.p. motor cycle, Lloyd's fittings, 26 wheels, Palmer tyres, spares, etc., wants slight pair; £10.—J. Ellwood, Row Foot, Ainstable, Arm thwaite.

5 h.p. Motor Cycle, low built, Rex twin engine, v fast, excellent condition; £12; inspection invite or what exchange?—Hardy, 69, Eamont Gardens, W Hartlepool.

MINERVA, 3½h.p., handle-bar control, Amac, engi just overhauled, new piston, bushed, good tyr adjustable pulley, etc.; must sell; £14, or best ca offer.—John Shaw, jun., Moresby, Whitehaven.

1909 5h.p. Twin Chater-Lea, magneto, spring for Mahon clutch, many spares, in lovely conditio any trial; £30, or nearest; must sell; owner bought c —33, Buston Terrace, Jesmond, Newcastle-on-Tyne.

FOR 1910 Triumphs, Humbers, N.S.U.'s, and Enfi lightweights, we can give you deliveries from sto Why wait? Send for lists.—Write, wire, or 'phone yo wants to Turvey and Co., The Motor House, Sunderla

SECTION II.

York and Lancashire.

DOUGLAS, Britons' triumphant lightweight.—Go lay, Fallowfield.

3½ h.p. Phelon and Moore, splendid condition; £30 Denby and Co., Ilkley.

3 h.p. Quadrant, reliable, new tyres, new belt; tri £12.—12, Jaffery St., Leigh.

TRIUMPH, handle-bar control, new belt, splend condition; £14.—23, Organ St., Leigh.

1910 Triumph, with free engine, in stock.—Cro Triumph Agent, Rotherham.

1910 Bradbury and Ariel in stock.—Cross, Mot Cycle Agent, Rotherham.

LIGHTWEIGHT Wolf, magneto, fine order; £11 Cross, Triumph Agent, Rotherham.

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

1909 Moto-Reve, twin, Druid forks, 2in. Continentals, grey finish, perfect order; bargain, £23.—Plastow, Grimsby.

1908 Twin Rex, magneto, handle-bar control, perfect order; £24.—Plastow, Grimsby.

TRIUMPH, 3h.p., spring forks, handle-bar control, new engine, perfect; 18 guineas.—Plastow, Grimsby.

3½h.p. Rover, excellent condition, lamp, horn, spares; £13, or near offer.—8, Warwick Rd., Stratford-on-Avon.

1907 15s.—2½h.p. Minerva, long handles, splendid running order; new belt.—Isgate, 7, Chapel St., Cranbourn.

1910 Free Engine Triumphs, two-speed Humber, twin Premier, in stock for immediate delivery.—Plastow, Grimsby.

DOUGLAS, king of lightweights, latest model in stock, prompt delivery.—Norton, ironmonger, Whitford St., Coventry.

1909 Triumph, splendid condition, new Lyso belt, Clinchers; nearest to £35.—Haydon House, Broughton Astley, Leicester.

1910 Triumphs in stock, also few second-hand 1908 and 1909 models.—Woodgate.

1910 3½h.p. T.T. Ariel, done 300 miles, perfect condition, very fast, full touring equipment; £36, or exchange magneto two-speed twin.—Woodgate.

3½h.p. J.A.P., Dunlops, automatic lubricator, good order; £8 15s.—Woodgate, 543, Coventry Rd., Small Heath, Birmingham.

DOUGLAS Lightweight (new), practically unridden, X'all saddle, perfect machine; price £36.—W. H. Weykin, Somerset Rd., Edgbaston.

TRIUMPH, Rex, Minerva, Excelsior motors, new and second-hand; send for weekly list.—The Victoria Garage and Electrical Co., Ltd., Coventry.

3½h.p. 1909 Premier, perfect condition, only ridden 2,600, complete with tools, spares, etc.; 30 guineas.—Main, 36, Parade, Leamington.

3h.p. N.S.U., twin, Bosch magneto, R.O.M. tyres, new condition, and guaranteed perfect, fine sidecar machine; £22.—Cole, Hazelwood Rd., Northampton.

ARIEL, Ariel, Ariel.—A few 2½h.p. lightweights at clearance prices, accumulator ignition; write for particulars.—Ariel Wks., Bournbrook, Birmingham.

TRIUMPH, 3h.p., magneto, overhauled by company 12 months ago, new engine, ridden little since bought car); £23.—Ernest Knight, Trent Bridge, Newark.

TRIUMPH, 1909, Palmer back tyre, Whittle belt and rubber belt, Lucas Projector headlight, spares; trial by time.—Louis Cafferata, Harrowby House, Grantham.

1910 3½h.p. Two-speed Humber, new, as received, with horn, spare valves; owner leaving England; cost £52, accept £46, bargain.—Connell, 37, Whitmore Rd., Small Heath.

PREMIER, twin, 1910, 3½h.p., new April last, hardly been ridden, condition perfect; going abroad; £48, or nearest.—Dr. Taylor, Bagthorpe Infirmary, Nottingham.

T.N., 4½h.p., 4-cyl., magneto and machine just completely overhauled by makers, and guaranteed in perfect running order; £25; trial.—Butterworth, Grafers, Warwick.

3h.p. J.A.P., magneto, fitted Roc conversion, handle starting, ridden 200 miles, perfect; cost £85, sell £50, lowest; giving up riding.—Box No. 4,885, the *Motor Cycle* Offices, Coventry.

TRIUMPH, 3½h.p., splendid condition, 1910 B. and B. carburetter just fixed, h.b.c., lamp and generator, pump, numerous spares; £28, or nearest offer.—Wills, 120, Edward St., Nuneaton.

MOTOSACOCHE, 1¾h.p., actual gold medal winner of last month London to Edinburgh trial, two sets of tyres, Whittle and spare round belt, lamp, horn, pump, stand, carrier, watch, etc.; £25.—Fray, 36, Albion St., Birmingham.

WOLF Lightweight, 1910, latest model, grand magneto, spring forks, stand, tools, splendid hill-climber, quite new, one of the best lightweights; list price £55 10s., take 30 guineas; makers' guarantee.—4, Lozells Rd., Birmingham.

ARIEL, 1910, 3½h.p., latest variable gear model, magneto, free engine, handle starting, Palmer cord tyres, spring seat, lamp, horn, and spares, only ridden 200 miles; owner too nervous; cost £57 10s., with extras; better than new; take £46, genuine bargain; makers' guarantee.—217, Heathfield Rd., Handsworth, Birmingham.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

REX Lightweight, magneto, all good as new; £18.—9, Kemball St., Ipswich.

1910 Triumph, nearly new; £44; 1909 £37; 1910 motors in stock.—Crawley, St. Mary's, Bedford.

3½h.p. 1907 Triumph, in excellent condition; £22 10s.—Starkey, Rosenlaui, Pemberley Av., Bedford.

MINERVA, 3½h.p., 1908, spring forks, excellent condition, little used; £16.—Fisher, jeweller, Ely.

KERRY, 3½h.p., reliable, fast, good climber, new Palmer back and Clincher; £8 10s.—Hollier, Stratford St. Av., Saxmundham.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

IN STOCK FOR CASH OR EXCHANGE.

"Don't write." Bring your machine and cash and we will treat you liberally

1910 New 5 h.p. Twin INDIAN	£57
1910 New 3½ h.p. REX Speed King	£42
1910 New 5 h.p. REX Speed King	£45
1910 New 3½ h.p. Tourist REX	£43
1910 New 5 h.p. Tourist REX	£51
1910 New 3½ h.p. Tourist REX, plate clutch	£54
1910 New 5 h.p. Twin REX DE LUXE	£62

3½ h.p. Two-speed BROWN, chain drive, handle starting	£25 0
1909 Two-speed Twin REX DE LUXE	£39 0
1909 5 h.p. Twin REX, spring forks	£32 10
1908 Twin Tourist REX, magneto	£26 10
5½ h.p. REX DE LUXE, clutch, handle starting, spring forks Cantilever	£19 19
5½ h.p. Twin REX, spring forks	£16 10
1909 3½ h.p. Magneto REX	£29 10
1909 3½ h.p. REX Speed King, soiled	£32 10
1909 3½ h.p. Two-stroke REX TOURIST	£29 10
1909 3½ h.p. Two-stroke REX DE LUXE, Roc clutch, two speeds, as new	£36 10
2¾ h.p. Magneto Twin DOUGLAS	£27 10
1908 3½ h.p. Magneto REX, spring forks	£24 10
1908 3½ h.p. N.S.U., magneto	£22 10
4 h.p. Magneto ROC, two speeds, and free engine	£29 10
2¾ h.p. PHELON AND MOORE, two-speeds	£22 10
3 h.p. BROWN, spray, Watawata	£9 10
3½ h.p. ROVER, trembler coil, 26in. wheels	£13 10
3½ h.p. Magneto QUADRANT, spring forks	£24 0
3 h.p. SINGER, V belt, high tension magneto	£15 10
3½ h.p. BRADBURY, 26in. wheels	£15 10
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. ROC, magneto, clutch	£19 19
3 h.p. CLYDE, high tension magneto ignition	£14 10
3½ h.p. WERNER, spray, light and low	£13 10
3 h.p. HUMBER, spray, powerful	£10 0
3½ h.p. MINERVA, good condition, Palmers	£16 10
2¾ h.p. DE DION pattern, spray	£5 10
2½ h.p. SINGER, trembler coil	£5 5
2½ h.p. BRADBURY, h.b. control, good order	£8 10
1½ h.p. MINERVA, wants attention	£3 10

Monster List on application.

Cash Offers and Easy Payments considered.

One Brand New 3½ h.p. REX, just received from makers, and fitted with latest 1910 forks, magneto, carburetter and other 1910 fittings, tools, spares, and accessories £37 10

SUNDRIES.

New 1910 de Luxe Sidecar	£5 17 6
New 1910 Rigid Art Cane Sidecar	£4 17 6
New Art Cane Sidecar Body	19/6
Motor Cycle Tubes, all sizes	6/-
New 26 × 2in. Clincher Ar Tyres	22/-
New 26 × 2in. Clipper-Reflex	17/6
New 28 × 2in. Clipper-Reflex Covers	17/6
New 28 × 2¼in. Clincher Ar	21/-
1909 Rex Spring Forks, with sprigs	19/6
1908 Rex Spring Forks, with springs	16/6
Forecar, with tyres, fit P and M. Rex, or Minerva	37/6
Lycett's Large Size, new	9/6
New 1910 Amac Carburetter, variable jet	27/-
New 20-amp. Fuller Accumulator	11/-
New 10-amp Premier Accumulator	8/6
Rex Pattern Handle-bars, plated	6/6
Swan Neck Seat-pillar	4/2
Mabon Clutch, to fit N.S.U.	39/6
Harrison Back Rests new recommended	12/6
Price's Stands for 26in. wheels	5/9
Rushmore Pattern Lamps, mirror lens	15/11
Hollow Belt Drills, the best	1/6
"Forward" Adjustable Belt Fasteners	1/6
Double Twist Horns	4/6
Three-note Horns, large size	7/11
Magneto Cut-out, special type	2/6

New 1909 5½ h.p. O.T.A.V. Voiturette £59 10

MOTOR BICYCLES FOR SALE.

BAT, 4½h.p., very powerful, handle-bar control, spares; owner buying new machine; £24; engine, etc., perfect.—Clare, Bassingbourn.

LATE 1908 5h.p. Twin Rex, magneto, Roc two-speeds, handle-bar control, B. and B., perfect order and condition; £26.—3a, Bridge St., Cambridge.

5h.p. Twin Rex, Roc two-speed, magneto, cantilever spring forks, B. and B. handle-bar control, everything in good order; £26.—3a, Bridge St., Cambridge.

£5 first cash.—F.N. lightweight, 1¾h.p., going order, new belt, new accumulator, spares, horn, stand, number plates, cyclometer; bought car.—Tompkins, Wilstead, Bedford.

1909 Ariel, 2¼h.p., magneto, lightweight, excellent condition, Brooks compound saddle, N.A.B. pillar, spare cover, tube, belt, valves, written guarantee; £25, or exchange for 1909 Triumph, cash adjustment.—Pearce, Wyncroft, Ipswich.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

1910 Douglas, practically unused; cost complete over £40, what offers?—Pratt, Hazeldene, Bromsgrove.

N.S.U. 2½h.p. Lightweight, geared down pulley, not ridden 500 miles.—Williams, Victoria House, Newbridge, Mon.

ZENITH, 3½h.p., free engine, good order; exchange for lightweight and cash, or sell £18, cheap.—69, Romilly Rd., Cardiff.

3½h.p. 1908 Rex, 1910 bearings, engine, magneto, Brown and Barlow, handle-bar control, absolutely reliable, perfect condition; 20 guineas.—Ernest Cook, The Foregate, Worcester.

REX, 3½h.p., new October, 1909, Roc two-speed gear, J.A.P. automatic lubricator, inch belt, not run more than 300 miles, will guarantee everything perfect machine as new, tyres unscratched, speed 5 to 50 miles per hour; price £45.—J., Clovelly House, Finstall, Bromsgrove.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

3½h.p. Ariel, splendid order; cash wanted; sacrifice £10.—Isaacs, High St., Slough.

N.S.U., 3h.p., accumulator, in good order, been overhauled; £10.—Phillips Bros., Aldershot.

ALLDAYS and Onions, 2½h.p., shop-soiled, magneto ignition; £25.—Phillips Bros., Aldershot.

MOTOSACOCHE, shop-soiled, magneto ignition; £25.—Phillips Bros., Aldershot.

1910 Triumphs for sale; immediate delivery from stock for cash.—Julian's Motors, Reading.

£6.—2¾h.p. Humber cycle, long bars, perfect condition.—Floyd, New Bridge, St. Anne's, Bristol.

3½h.p. Minerva, spring forks, splendid order throughout, fine climber; £14 10s.—Surplice, Sheet St., Windsor.

3½h.p. Daw; £8 10s.; good running order, h.b. control, tyres good; trial run.—Simpson, jun., Sandhurst, Berks.

2¼h.p. F.N., in good order, long handle-bars; cheap.—£7 10s.—H. Nanckievell, 137, High St., Eton, Bucks.

3h.p. Motor Cycle, re-enamelled and overhauled; trial; £12, or near offer, or exchange.—Wall Auto Wheel, Narborough, Broad St., Banbury.

3½h.p. Quadrant, 1908, Bosch magneto, with all spares, Clincher tyres, in good condition, machine recently overhauled; £20, or offers.—4,360, *The Motor Cycle* Offices, Coventry.

CHASE, 5h.p., and sidecar, perfect condition, £24; 6-7h.p. twin, Chater-Lea frame, Dunlop tyres, brass tank, splendid order, £20, or exchange; trial any time.—Pritchard, 25, Montague Hill, Bristol.

3½h.p. Brown, new accumulator, new footrests, foot brake, Dermatine belt, Brooks saddle, new horn, and toolbag, Palmer tyres, in daily use; lightweight wanted; 12 guineas.—Taplin, Bristol House, Woodstock.

EYLES and Eyles, 113, St. Aldate's, Oxford, for second-hand motor cycles and sidecars. 1910 single Premier, just arrived; 1910 twin Premier, 45 guineas; 3½ h.p. Minerva, magneto, handle-bar control, £17; large stock of motor accessories.

SCOTT Two-stroke, 1910, with Millford 14 guinea spring wheel sidecar (geared to suit sidecar), was on view last Stanley Show, not done 200 miles; reason for selling, ill-health; expert examination invited; 55 guineas.—Billingham, Client View, Cemetery Rd., Lye, Stourbridge.

ROC 5-7h.p. Twin Peugeot, Bosch ignition, Longuemare H., adjustable pulley, R.O.M. combination, 26 by 2½ tyres, one butted and one tricar tube, Premier searchlight, brass flexible horn, S.N.P. stand, Camel belt, Roc clutch, bargain, £20; also one Liberty coupler, £1.—Parsons, Hartley Wintney, Hants.

MOTOR BICYCLES FOR SALE.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

HAMPSTEAD for Bargains.—Heath Street Motor Works, 5, Heath St. Tel.:2678, P.O.

HAMPSTEAD.—3½h.p. 1910 Kerry-Abingdon, almost new; £39, with accessories.

HAMPSTEAD.—3½h.p. Triumph, 1909, splendid condition, with all accessories; bargain, £35.

HAMPSTEAD.—1910 2¼h.p. two-speed F.N.'s; £40; no extra for easy payments.

HAMPSTEAD.—1910 Rexes, all models in stock; no extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; exchange or gradual payments taken; no extra.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4½h.p., latest model, handlebar control, condition splendid, with accessories; £22.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD for Moto-Reve Model A.; in stock; no waiting; no extra for easy payments.

HAMPSTEAD.—1909 3½h.p. Triumph, good condition, studded tyres; £34; all accessories.

HAMPSTEAD.—2¾h.p. Kerry, good condition, with all accessories; £10, bargain.

HAMPSTEAD.—2¾h.p. brand new Zedel, No. 6 Chater-Lea low frame, incomplete; £12 15s.

HAMPSTEAD.—3½h.p. new 1910 two-speed Phelon and Moore, in stock; £55.

HAMPSTEAD.—1910 3½h.p. two-speed Phelon and Moore, four weeks old; £50.

HAMPSTEAD for latest 1910 new 4-cyl. F.N.'s; in stock, no waiting.

HAMPSTEAD for Triumphs, in stock, new free engine models and standards; no waiting.

HAMPSTEAD.—5h.p. Vindec Special, 1908, free engine, magneto, and spring forks; £26.

HAMPSTEAD.—1910 Douglas, almost new, with all accessories; great bargain. £33.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexes, Humber, etc.; exchanges or gradual payments.—Rey, 5, Heath St. Tel.: 2678 P.O., Hampstead.

6h.p. Boyer Motor Car, Aster engine, 4-seater; £18.—Mylam and Co.

4½h.p. Stevens Motor Cycle, footboards, torpedo tank, long handle-bars, low seat; £18, or offer.—Mylam and Co.

2h.p. Rex Motor Cycle; only £4.—Mylam and Co.

2¾h.p. De Dion, long handle-bars, Amac carburetter, spring forks, low seat, Palmer cord tyres; £12, or offer.—Mylam and Co.

2¾h.p. Star Motor Cycle, Z.L. engine; £12, or offer.—Mylam and Co.

1¾h.p. F.N., magneto and spring forks; £15.

5h.p. Twin Rex, with Roc free engine clutch; £25, or offer.

ALL the above to be seen at Mylam and Co., 354, High Rd., Streatham, S.W.

EAGLES.—Indian, 5h.p., 1910 twin, Bosch magneto. Indian red finish; £42, as new.

EAGLES.—N.S.U. 2¼h.p. Twin Lightweight, 1909. Bosch magneto, M.O. valves, under-geared pulley, only ridden 100 miles; £29 10s.

EAGLES.—3½h.p. N.S.U., magneto, adjustable pulley, 26 by 2¼ Continental tyres, excellent condition; £15 10s.

EAGLES.—3½h.p. Peugeot, Truffault, spring forks, Palmer tyres; £14 10s.

EAGLES.—Rex, 2h.p., vertical engine, long handle-bars, low saddle, Dunlop tyres; £6 15s.

EAGLES.—Any of the above can be had on approval, deposit.

EAGLES.—We have a few brand new N.S.U.'s just delivered, finished in latest style; 3h.p., £25; 3½h.p., £31; 6h.p. twins, £40; two-speed gears, £5 15s. extra; exchanges entertained; deferred payments; inspection invited.

EAGLES and Co., High St., Acton.—N.S.U. West London District Agency. 1910 model from stock; liberal allowances for machines in part payment. Tel.: 556 Chiswick.

3h.p. J.A.P., just overhauled; what offers?—Brady, 36, Morseby Rd., Clapton.

VINDEC, 5h.p., Truffaults, Bosch, good tyres; bargain, £25.—84, Greenside Rd., Croydon.

REMOVING BARGAINS.

YOUR offers carefully considered,

BARGAINS IN
1909 REXES. 1909

1909 3½ h.p. Tourist **REX** £35
1909 5-6 h.p. Twin **TOURIST** £37
1909 5 h.p. **REX DE LUXE**, two-speed.. £48
Compare these with 1910 prices.

OTHER GENUINE BARGAINS.

2¼ h.p. 1910 **F.N.**, two-speed model, brand new, in crate	£38	0
2¾ h.p. 1910 **DOUGLAS**, almost new	£35	0
1909¾ 5 h.p. **REX**, speed model	£35	0
3½ h.p. **QUADRANT**, spring forks	£19	0
1908 5-6 h.p. Twin **REX**, Roc clutch, magneto, h.-b. control	£30	0
MOTO-REVE, magneto, h.-b. control, Druids	£28	0
5 h.p. Twin **VINDEC**, magneto, h.-b. control	£25	0
1908 **REX**, magneto, black and gold	£19	0
3 h.p. **SINGER**, magneto, h.-b. control	£17	0
6 h.p. 1909 **N.S.U.**, two speeds, magneto, h.b. control	£44	0
3 h.p. **CLYDE**, magneto, Druid forks	£16	0
3½ h.p. **REX**, magneto, h.b. control	£16	0
2 h.p. **QUADRANT**, very good	£6	0
5-6 h.p. Twin **PEUGEOT**, magneto, etc.	£30	0
1909 Two-speed 6 h.p. **REX DE LUXE**, only done 200 miles	£44	0
3½ h.p. **F.N.**, magneto, h.b. control	£18	0
5-6 h.p. Twin **REX** and Sidecar	£20	0
6 h.p. Twin **REX**, Roc, two speeds	£24	0
6 h.p. Twin **REX**, spring forks, 26in. wheels	£16	10
3 h.p. **VINDEC**, magneto, h.b. control	£18	0
1909 3½ h.p. **REX**, magneto, etc.	£30	0
3½ h.p. **REX**, M.O.V., spray	£10	10
3½ h.p. 1906 **REX**, M.O.V., spring forks	£14	0
2¼ h.p. **REX**, M.O.V., vertical	£10	0
1908 **N.S.U.** Lightweight, Bosch magneto	£19	0

FARRAR'S HALIFAX SIDECARS.

Admitted by all to be the finest popular priced sidecar on the market.

Note where the front arm grips the centre of the sidecar, and compare this design with the lob-sided and unmechanical attachment adopted by some makers.

£4 17s. 6d., complete with best tyres.
Twelve months' guarantee.

CARS AND TRICARS.

5½ h.p. **HUMBER** Tricar, wheel steering	£26	0
4½ h.p. **BRADBURY** Tricar, two speeds	£19	0
8 h.p. **BEAUFORT** Car, four-seater	£40	0
5½ h.p. **O.T.A.V.**, nearly new	£50	0
5-6 h.p. **LITETTE** Tricar, water-cooled, Roc two-speed gear, handle starting, magneto ignition, a beautiful light tricar	£35	0

ODD BARGAINS.

1910 B. & B. latest pat. carburetters	£1	7 0
1910 Amac variable jet	£1	7 0
4/- allowed for old one.		
Latest type Bosch Plugs	2	9
N.S.U. Two-speed Gear for rim. belt	£2	15 0
Brooks's Broo Saddle	9	6
Dunlop 28 × 2 and 2¼in. Wired Covers	12	8
6 h.p. Water-cooled Engine	£6	0 0
Forecar Attachment, 26in. wheels	£3	0 0
Rex Pattern Foot Brake, new	9	6
Bowden Front Motor Brakes, new	8	6
8 h.p. Twin Rexette Engine, two speeds	£12	0 0
Longuemare, Amac, B. and B., etc., Carburetters, each	5	6
Premier Magnetos, new	£2	19 6
Clincher Tubes, post free	6	6

WANTED!
Good Motor Cycles. Cash Waiting.

Farrar's Motories,

SQUARE ROAD, HALIFAX.

Telephone 919.

MOTOR BICYCLES FOR SALE

NYE'S!—1909 3½h.p. Zenith, Gradua gear, Bosch neto, fine machine; £26 10s.

NYE'S!—1909 Trump-Fafair, Druids, Dunlops, anteed; £25.

NYE'S!—1909 4-cyl. 5-6h.p. F.N., Goodrich splendid condition; £28.

NYE'S!—1909 3½h.p. Bradbury, spring forks, anteed, fine hill-climber; £26 10s.

NYE'S!—1908 6h.p. N.S.U., two speeds, magneto sidecar machine; rare bargain. £28.

NYE'S!—1908 Roc, two speeds, Bosch, fine cond £26.

NYE'S!—3½h.p. Fafair, Palmer cords, unscra Chater-Lea frame; bargain, £12.

NYE'S!—3½h.p. Minerva and sidecar combin Bosch magneto, two-speed gear, handle-bar trol; absolutely given away for £20.

NYE'S!—4h.p. Stevens, variable gear, and sid good order; low offer taken.

NYE'S are the People to do Business with. Try

NYE'S!—1908 3½h.p. N.S.U., magneto, nearly nice condition; £20.

NYE'S!—1907 3½h.p. Minerva, Bosch magneto, speed gear, nice condition; bargain, £15 10

NYE'S!—1907 3½h.p. Minerva; bargain, £10.

NYE'S!—1906 3½h.p. Ariel, good order; £12.

NYE'S!—2h.p. Quadrant, running order; £4.

NYE'S!—The firm to deal with.—69, Leather Holborn, London. 'Phone, 6299 Holborn.

3½h.p. Minerva, spring forks, perfect; £12, 2 offer.—14a, Maple Rd., Surbiton.

5-6h.p. Peugeot, No. 6 Chater-Lea frame, 2½in. t £20.—47, Camden Grove, Peckham.

1909 Twin, powerful, steel studs; first offer.—B 22, Palmerston Rd., Walthamstow.

2¼h.p. Bradbury; price £12; particulars on app tion.—Beynon, Bath Place, Worthing.

CHATER-LEA-MINERVA, only wants seeing; trial; bargain.—65, Marks Rd., Romford.

4h.p. Bat, Dion carburetter, coil, good tyres, n plated; £12.—31, Landor Rd., Stockwell.

£9, Offer.—3½h.p. Excelsior, Amac, rebushed, condition.—Hill House, North Dulwich.

2¼h.p. J.A.P., good going order, footboards; £6 2 —Mardall, 39, Brunswick Rd., Leyton.

£8.—2¾h.p. Brown motor cycle, complete, and order; photo.—4, Maple Terrace, Surbiton.

2h.p. Minerva, Chater-Lea fittings, in perfect runn order; £6 15s.—66, Wiltshire Rd., Brixton.

3½h.p. Minerva, 1907, very fast, low; £14 10 2 Dunning, 102, Culford Rd., Kingsland, N.

WHITTLE'S.—F.N., 4½h.p., 4-cyl., magneto, spr forks, nearly new, unscratched; bargain.

WHITTLE'S.—Bat-J.A.P., 6h.p., twin, spring fr and forks, excellent order; £22 10s.

WHITTLE'S.—F.N., 4½h.p., 4-cyl., magneto, spr forks, fine order, extra cheap; £22 10s.

WHITTLE'S.—Rex de Luxe, 5-6h.p., twin, magn Roc clutch, as new, unscratched; £26.

WHITTLE'S.—Bat, 3½h.p., spring frame, M.M engine, De Dion carburetter, practically n £18 10s.—Whittle's Motor Exchange, Earlsfield.

CLYDE Motor Cycle Magneto taken for debt; b gain, £10 10s.—Locke, draper, Penge.

3h.p. N.S.U., new R.O.M. non-skid back wheel, perf condition; bargain, £20.—Priestley, Ramsgate.

REX, up to date, powerful, reliable; bargain, appoi ment, trial.—White Lodge, 209, Brixton Hill.

TRIUMPH, free engine, new September last, all acc sories; £44.—80, Cambridge St., Victoria, S.W.

2¼h.p. Twin Lightweight, perfect order and con tion; £8.—67, Little Heath, Charlton, Lond

A 4-cyl. F.N. motor cycle, in new condition, splend running.—A. Schmutz, 42, Lillie Rd., Earl's Cou

TRIUMPH, 1908, good as new; trial by appointme after 6; £30.—71, Southside, Clapham Comm

BRADBURY Agent for N.W. London.—Gardn High St., Hampstead.

4-CYL. F.N., 4½h.p., perfect. £24, worth £30.—7 Mill Lane, W. Hampstead.

TRIUMPH, 3½h.p., 1907, magneto, Mabon clutch, perfect order; £24.—Storey, 337, Euston Rd., Lo don.

F.N., 1¾h.p., magneto, handle-bar control, spring for and seat-pillar; £10.—Tamplin, The Green, Twicke ham.

2h.p. Minerva, Michelin tyres, sound order; £6, cycle and cash.—Sat., 4, Gillies St., Kentish Tow N.W.

MOTOSACOCHE, 1909, 1¾h.p., accumulator; £20. Holly Mount, 81, Peckheath Hill, Londo S.E.

THE MOTOR CYCLE

Vol. 8. No. 377. CONTENTS. June 16th, 1910.

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The Mechanics of Riding Round a Corner.

By ARCHIBALD SHARP, B.Sc., A.M.I.C.E.

Some of our readers may have heard something about what has been erroneously styled a "new method of taking corners," in which the rider inclines his body outward and allows the machine to lean inward. Far from being new, this method was adopted by some well-known riders as far back as 1903 or even earlier. We do not recollect reading or hearing of any definite authoritative statement as to whether any benefit is derived from adopting this method of taking corners; we therefore asked Professor Archibald Sharp to contribute a short article on the subject and give his opinion, which is as follows:

The Editor has asked me to contribute a short rticle pointing out if it is of any assistance to the der to lean his machine inwards and his body out- ards when taking a corner. Subject to the proviso iscussed below, I do not believe any advantage is ined by the procedure. In practical pedi-cycling nd motor cycling I have never experienced any ldditional security—rather the reverse—from leaning utwards. Nor from the theoretical point of view an I find any justification for the practice.

Starting from Newton's first law of motion, "Every ody continues in its state of rest or of uniform motion *n a straight line* unless compelled by an impressed orce to change that state," the fundamental prin- ples involved can be simply discussed. When a otor cycle is running steadily in a straight line, the ertical forces acting on the system formed by the achine and rider are balanced, viz., the total weight ting downwards, and the reactions of the ground at ie tyres acting upwards. Similarly, the horizontal orces are balanced, viz., the wind resistance and olling resistance of the tyres opposing the motion, nd the tangential reaction from the road surface on ie tyre of the driving wheel in the direction of notion. (The internal friction of the engine and echanism of the machine does not directly affect the roblem.) The resultant force on the system is zero, and the velocity remains constant in magnitude and direction.

The Centrifugal Force.

If the velocity of the body alters either in magnitude or direction some applied force is necessary. If the magnitude of the velocity remains constant, but the direction of the motion gradually changes, as in rounding a corner, the applied force is at every instant at right angles to the direction of motion, and is provided by the side reaction of the ground at the tyres, directed towards the inside of the curve. The equal opposite force (exerted sideways by the tyre on the ground) is called the "centrifugal force." The centrifugal force is proportional to the mass W of the machine and rider; inversely proportional to r, the radius of curvature of the curve described; and proportional to the *square* of the speed v. If W is expressed in pounds, r in feet, and v in feet per second, the centrifugal force F is given by the formula—

$$F = \frac{W v^2}{g r}, \text{ or } \frac{F}{W} = \frac{v^2}{g r},$$

g having the value 32.2.

Fig. 1 shows the conditions of a motor cyclist rounding a corner when the rider does not move side-

The Mechanics of Riding Round a Corner.—

ways on his seat, but both machine and rider lean inwards. G is the centre of gravity of machine and rider; the weight W is balanced by the equal opposite vertical reaction W from the ground, and the centrifugal force F is supplied by the horizontal reaction from the ground. The two forces W and F have a resultant R, as shown in the figure. The rider auto-

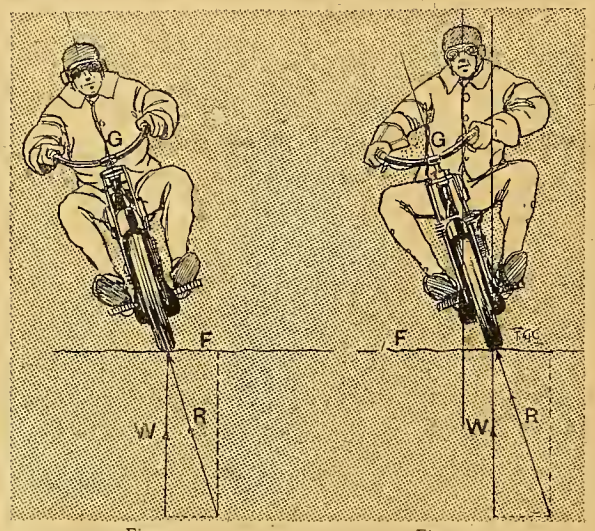


Fig. 1. Fig. 2.

Diagrammatical sketches showing a motor cyclist leaning machine and body inward (fig. 1) and machine inward and body outward (fig. 2).

matically leans inwards until the central plane of the bicycle coincides with the direction of R. The resultant R is transmitted to G, its vertical component balancing the downward weight W, and its horizontal component supplying the necessary radial *centripetal* force to keep G moving in the curve.

Fig. 2 shows the conditions when the rider leans outwards, the machine inwards. If the speed v and radius r of the curve be the same as in fig. 1, the relative positions of the centre of gravity G, and of the forces W, F, and R are exactly the same as in fig. 1. The only difference between the two figures is that the angle the machine makes with the vertical is greater in fig. 2 than in fig. 1.

When the machine is just on the verge of skidding the centrifugal force F is equal to the greatest frictional resistance that can be exerted. The ratio F/W is then just equal to the coefficient of friction between the tyre and the ground. The condition of the road and tyre surfaces therefore determines the biggest value of F/W. Figs. 1 and 2 are identical in this respect, the slope of the wheel not affecting the problem.

The Contact of the Tyre at the Ground.

The only possible modification is that probably with the flatter slope of the wheel in fig. 2, in some cases the ridge at the side of the tyre may get a better grip of the road surface than the smoother central part of the tread. Figs. 3 and 4 are enlarged views, showing the contact of the tyre at the ground. In fig. 3 the point of contact is on the middle part of the tread. In fig. 4 the point of contact is at the corner of a ridge, and it is possible that the grip is better than in fig. 3. However, I don't think there is much in this distinction.

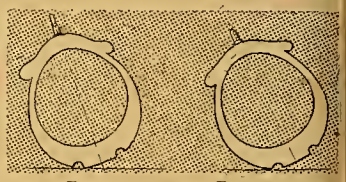


Fig. 3. Fig. 4.

The tyre contact at the ground.

Incidentally, the fact that F varies as the square of the speed, shows how careful a rider should be in slowing down at a corner. A certain corner may possibly be taken with safety at twenty miles an hour, which would necessitate a certain angle of heel. To take the same corner at twice the speed the angle of heel would have to be increased four times, and the friction may not be sufficient to give the necessary grip. Hence the necessity for banking, the ideal being to make the track or road surface at right angles to the direction of the force R.

ANOTHER TYPE OF BACKREST.

A NEW patent backrest, embodying desirable features, has been brought to our notice by Messrs. Samuel Hall and Sons, Ltd., 18-20, Swinton Row, Edinburgh, well-known as the makers of the F.R.S. lamp. The rest is illustrated on this page. Its advantages are: Absolutely automatic action, great strength and comfort, smallest space, quickly fitted, and sensitive adjustability. When fitted, the backrest is part of the saddle, consequently it moves with the rider. After mounting the machine, the rider simply puts one hand behind him and pulls up the rest, when it will "click" into position. When dismounting, the backrest looks after itself, and the reason is that immediately the rider's weight is off the saddle, the support instantly falls down, as shown in the right-hand illustration. Rough roads will not cause the rest to fall, because every particle of weight must be off the saddle before it is released, and then its action is instant.

A new backrest, with an automatic action. Immediately the rider's weight is off the saddle, the backrest falls down.

OCCASIONAL COMMENTS.

By "IXION."

Automatic Carburetters.

Support of my advocacy of automatic carburetters for certain purposes has just come to hand from an unexpected quarter. The A.M.A.C. Co., who make the carburetter used on the Matchless machines in the T.T. Race inform me that the Colliers and Colver adjusted and used it so as to be entirely automatic. It is designed to retain an extra air lever, the automatic valve being intended to look after the more sensitive variations at moments when the rider's attention is occupied by steering or lubrication; but the three Matchless experts preferred to rely exclusively on the automatic air, and, according to the patentee of the device, raced from start to finish on single lever control.

Drilled Pulleys.

Some pulleys had been liberally drilled with holes for the T.T. Race with an eye to reducing weight, and they repaid the experimenters in many instances by bursting. The Triumph pulleys had apparently been drilled with very different intent. A ring of comparatively small holes encircled the flanges at such a depth as to come midway down the side of the belt; the wedging action of the drive would therefore have the effect of forcing small pimples of belt, as it were, into each orifice, and so intensify the grip. It would be interesting to know how many riders used 28° belts in 28° pulleys. One belt manufacturer confided to me that he had scrapped all his moulds at considerable expense, and now supplies 30° belts and 28° pulleys. He points out that the upper part of the sides of a new belt keeps quite clean until the belt has covered a certain distance, and asserts that the wedging action distorts a 28° belt in actual use. The old adage, that belt and pulley should be of equal angularity (viz., 28°), may yet be true of leather belts, but the more compressible rubber and canvas type is very susceptible to distortion, and he obtains a better grip by making his belts at 30° section.

Valve Springs.

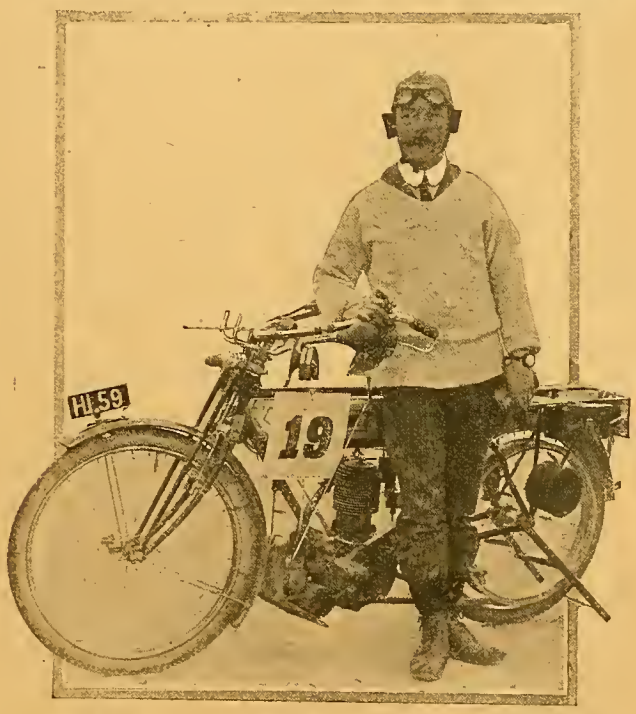
Many riders have experimented with different strengths of valve springs, and few points better repay experiment, as some makers are rather careless about the strength of their springs, and in any case the springs slowly lose temper in running. I dare say many readers have not realised that the inlet and exhaust valve springs need testing separately and in combination. One machine, for instance, which a member of our staff was tuning, ran no better with any exhaust spring other than the standard, but the fitting of a much stiffer spring to the inlet valve speeded it up several miles an hour. Hence a thorough experiment with valve springs implies testing three or four different springs on each valve both separately and in combination, but care must be taken not to use too strong a spring, or broken valves will result.

Belt Fasteners and Low Gear Ratios.

Many belt fasteners, particularly those of the adjustable pattern, are totally unsuited either to expanding pulley gears or to the lowest ratio of ordinary variable pulley. When a motor bicycle engine driving a 26in. wheel is geared down as low as 6½ to 1, as is quite practicable with many pulleys, a very small arc of belt can at the best get a grip on the tiny engine pulley. Some fasteners measure 3in. from the tip of one end plate to the other, and even if their link is perfectly flexible, the end plates stiffen the extremities of the belt and cause them to "lift" out of the pulley groove. As a result the gripping area of the belt is cut down to an infinitesimal number of square inches, and slipping or fastener trouble is certain to occur almost immediately. As a general rule, when a very small engine pulley is being used, the fastener should be as short and flexible as possible.

Bravo, the Triumph Team!

Quite the best achievement in the annals of the T.T. Race was registered by the Triumph machine, which got all its starters through, including five private owners, and obtained the third, fourth, sixth, seventh, eighth, eleventh, thirteenth, and fifteenth places. This spells magnificent construction, thorough practical foresight, and fine riding. Creyton, Marshall, and Newsome, we all know (condolences to Marshall, by the way, on his tyre troubles; next year his luck may be in again). The amateurs are indeed a team of cracks. Adamson hails from Perth, and can take corners better than any rider I have seen. Cooper was one of the first Triumph enthusiasts, and has as much experience as anyone. Murphy trains in Ireland, and after the bumps of the Green Isle regards the Manx course as a billiard table. Howard Smith will be a lot faster next year, and McMinnies is acquainted with speed of old, and probably rode more cautiously because he was out to report the race from a competitor's standpoint.



Dr. C. B. Moss-Blundell, a prominent M.C.C. member and successful competition rider, who was instrumental, through the columns of *The Motor Cycle*, in forming the Leicester and District Motor Cycle Club. His mount is a 3½ h.p. Triumph.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

The Tourist Trophy—A Suggestion.

[4808.]—As it may be of interest to some of your readers, how would it be to run a race similar to above for private owners only, so as to give them a chance, as seemingly the last three or four T.T. races have been won by a trade rider? GALBROOK.

Increase of Speed on Partially Raising the Exhaust Valve.

[4809.]—With reference to Mr. Forward's letter [4791], it would be very interesting to have further details. For instance, does the alteration to the cam affect the inlet or exhaust valve, or both, and is the increased profile of cam set to give earlier opening, or later closing, or both?

Doubtless there are many readers who would be extremely interested to know exactly how the valves are timed by the alteration carried out by Mr. Forward.

BACKWARD.

Carbonised Deposit in Engines.

[4810.]—I was much interested in "Ixion's" notes regarding deposit in engines, and shall be glad if any readers can inform me and others if they have tried the following tip, and with what success: The rider of a J.A.P. twin informs me he always kept a $\frac{3}{16}$in. ball in each of the cylinder heads, and this prevented carborisation, no matter how much he lubricated. He found cylinder head and top of piston always in a bright and polished condition whenever he removed his cylinder. Perhaps some other reader would give his experience. Personally, I think the idea quite feasible, and shall try it when next taking down engine.

LN 3980.

Hill-climbing.

[4811.]—Your correspondent, Mr. D. R. Greis, refers, I expect, to Succombe Hill in his letter [No. 4788]. This hill is a turning to the left soon after passing Warlingham Station, on the Purley to Caterham Road. It is certainly a wonderful performance for any single-geared "single" to make a clean ascent, but Mr. Greis is not the first to do so. I noticed some weeks ago, in a Triumph 1909 list, that a Cambridge motor cyclist, on a 1908 Triumph, had made two ascents minus pedals. My brother recently rode up Succombe Hill on his 1910 P. and M. (his weight is 14 stones), and I know a motor cyclist who went up on a two-speed Warwick machine. I also know another gentleman who has driven his 10 h.p. Darracq car up this hill.

I know of no other hill so difficult to take on a single-geared motor cycle, and Mr. Greis's climb is a great credit to his machine and him. S. H. CROW.

Jamming of Carburetter Piston.

[4812.]—With reference to letter 4792, "Trouble" should try slackening the nut below the extra air lever and above the jet chamber. I think he will find this is the cause of the jamming and not the dust getting behind the piston.

C.E.D.

[4813.]—In reply to "Trouble" [letter 4792], I had the same bother with my carburetter in really muddy weather only, and several times broke the pin through the collar of the choke tube trying to force it round. I partially cured it by filing a little off the point of the screw which travels in the spiral slot of the choke tube, as I found most of the trouble was caused by grit getting in this groove. Trusting this will help "Trouble," E. S. 186.

Road Dangers.

[4814.]—On Saturday afternoon, June 4th, on the main road between Lancaster and Carnforth, a small patch of very sharp granite stones, newly laid, very deep and loose, was left the *full width* of the road.

If common "horse sense" had been used, either the men would have been kept on overtime to roll the stones in, or the laying of so short a stretch held over till the work was resumed on Monday, or a quantity of soft earth thrown over it, or only half the width of the road laid.

I presume the men would finish on Saturday morning, and therefore these sharp-cutting stones were left one and a half days on one of the main roads of the country, over which at the week-end thousands of pedal cycles, motor cycles, motor cars, rubber-tyred traps, and other vehicles would pass, and consequently many pounds worth of damage done.

I was driving a brand new Ford motor car home from London and up to this stretch nothing had occurred, when one tyre was cut on this short stretch, although I passed over it at walking pace. C. W. BARRETT.

P.S.—If the police, and especially in these parts, would attend to matters like the above, and waste less time in trapping motorists, they would be doing a public service.

[4815.]—I wish to caution motor cyclists travelling over Douglas Moor, N.B. The road has a splendid surface, but has been sprinkled here and there with small sharp stones, with edges sharp as a razor, which play havoc with the tyres. The other day when taking my 6 h.p. N.S.U. over this road I experienced ten punctures in the rear wheel in about three miles, cutting large rents in cover and tube which have not yet been 200 miles. Reaching Lesmahagow I found cover and tube completely ruined and totally unfit for my return journey of 150 miles. Thinking Glasgow a sure place to purchase a new 24in. × 2½in. cover and tube I took the train and found, to my great dismay, such a size in the heavy tread was not procurable or even stocked. The following day found me again in Lesmahagow ready to take the train home. Here Robert Park and Sons, although I was an absolute stranger, very kindly lent me free of cost a good cover and tube. J. M. E.

The Glasgow Clarion Sports.

[4816.]—A regrettable feature of the three miles motor cycle handicap at the above meeting on June 4th was the inability of the competitors to pass each other on the banking of the Celtic F.C. track, which is rather narrow for this class of racing. In the third heat, Baxter failed to pass the undersigned on the banking in the earlier laps, and only succeeded in doing so in one of the later laps by passing so close as to cause my front wheel to rub for several seconds against the inside of his back wheel, instead of observing the Brooklands rule to get a clear three lengths ahead before crossing.

As you are aware, in the T.T. Race competitors were strongly urged by Mr. Nisbet to avoid attempting to pass each other on corners. Immediately on completion of my heat I lodged a protest, but was informed by one of the judges that there was no occasion to do so, as I had won the heat, and my half-guinea was forthwith returned. Judge of my astonishment when, on taking my place for the final, I was informed *by the handicapper* that I had been disqualified, and would not be allowed to start. The reason vouchsafed was that Baxter had failed to get past me on the banking!

Collier failed to pass his opponent, and, in fact, every competitor who valued his life and that of his rival failed. Only

one competitor was disqualified for preventing the passage of his opponent on the banking, and this, moreover, was done on the report of an umpire who probably held such a position in a motor cycle race for the first time. The opinion of many of those present, including Mr. H. A. Collier, was that the decision was, to put it mildly, most unjust.

If motor cycle racing in Scotland is to be put on a sound footing, it must surely be organised and controlled by practical motor cyclists, who should now take the matter into their own hands. JAMES S. GRANT.

[The trouble arises apparently from the fact that the track is unsuitable for high speed motor cycle racing.—ED.]

Why Wait till Next Year for Another Road Race?

[4817.]—Why wait till next year for another road race? Everyone who saw the T.T. agreed that it was a sporting event of the very first class—in fact to anyone, such as myself, deeply interested in motor bicycles, it was absolutely the most interesting competition that could possibly be witnessed. Granted that the race is not only interesting but instructive, that it is not only popular with spectators and officials, but that the competitors also are absorbingly eager to meet again, then why be bound by a hard and fast annual period?

Why wait till next year? Could not a similar event be arranged in September this year, possibly not for the Tourist Trophy, nor by the name of Tourist Trophy, but under similar conditions and for similar objects. There could not be any excessive difficulty either in making arrangements or in raising the help and the funds. Another race this year will also provide an opportunity for a special competition restricted to lightweights, a class of machine which is increasingly popular, and of which the speed and power could be surprisingly demonstrated.

The lightweight event would be greatly welcomed by many of the public who fancy that class of mount, and would like a lead as to the respective qualities of the varying makes, and it would also be welcomed by those manufacturers of lightweights who have confidence in their productions. FRANK S. WHITWORTH.

A Successful Conversion.

[4818.]—Herewith I enclose you three photographs which I think may be of interest to your readers.

No. 1 shows an old 4½ h.p. tricar bought by me in 1909 with the usual forecarriage.

You will notice the position of the radiator and petrol tank, also the handle-bar, steering, and diamond shape framework, to carry the forecarriage, the drive being taken on the back wheel alone. I found the wear and tear on the back tyre and the vibration so great that I set to work and converted it into the vehicle shown in photographs 2 and 3.

In order to do this I bought up a lot of odds and ends at a local auction sale very cheap, out of which I provided the machine with a couple of back wheels, and fitted them with a differential axle and small carriage springs, the new wheels taking the place of the old single driving wheel.

Over this I built a seat for two.

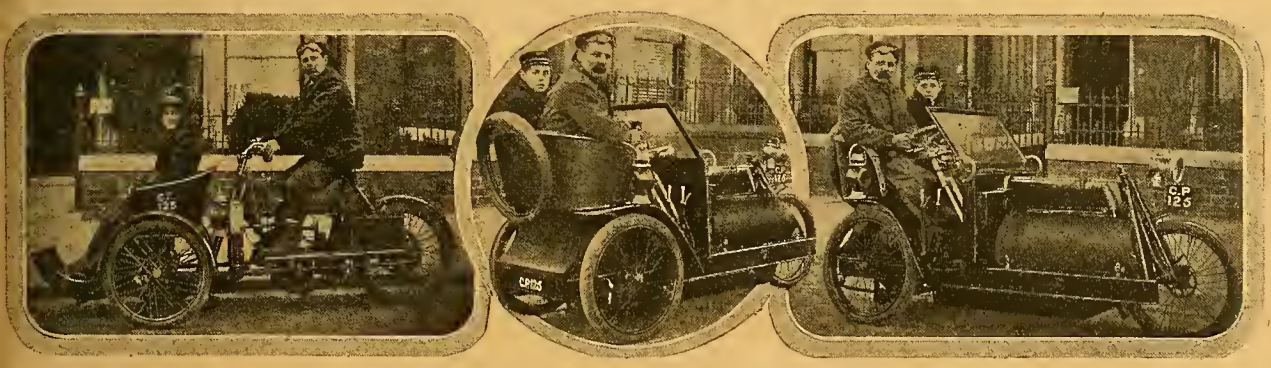
I used one of the old front wheels as a new front steering wheel, and as it was already fitted with a rim for band brake, I fitted it up with a band brake operated by a Bowden wire, controlled from the steering wheel, and in addition to this with a pedal brake. The two brakes together will now hold it on any hill.

In putting in the two wheels in the place of the old driving wheel, and a single steering wheel in the place of the old forecarriage wheels, I had to cut off the handle-bars level with the petrol tank, converting it to wheel steering, fitting the front steering wheel into a pair of old cycle forks operated through the old steering head. The socket through which the steering wheel now operates was built up out of the head of an old cycle as shown in the photograph, the old diamond shape framework to carry the tricar being done away with. The radiator now forms the lower part of the screen, and you will notice I have now fitted the car with complete undershield and covered the engine, etc., with a long bonnet. The petrol tank still retains its original position.

The box at the back provides ample room for spares, and plenty of room under seat for luggage. The long side pieces and framework are made of wood and used for appearance.

The alterations have not only reduced the original weight by 106 lbs., and made it 16in. shorter, but I have now got a steady running vehicle in place of a machine which, to say the least, took a great deal of jockeying to keep one's seat at anything over fourteen or fifteen miles per hour on rough roads.

The machine runs fifty miles to the gallon.



An old pattern tricar altered almost beyond recognition. See accompanying letter signed CP 125.

(1.) The tricar in its original form. (2.) Rear view of the converted vehicle with side by side seats. (3.) Three-quarter view of the altered machine which the owner much prefers.

I might perhaps point out that I have made the whole of the above alterations and fittings entirely myself, though by trade I am a builder, and have had no mechanical training, and I think these photographs may be the means of inciting others to make similar improvements.

I see no reason why an up-to-date small tricar should not be built on these lines. CP 125.

Delay in Execution of Orders.

[4819.]—I noticed in your paper a short time ago a complaint about the unbusinesslike manner in which some firms replied to repair orders. I may say in fairness to the F.N. depot I always receive most prompt attention for every small order. E F 216.

SUMMARY OF CORRESPONDENCE.

Will Cyril Morgan kindly send his address, not necessarily for publication, but as a guarantee of good faith?

Messrs. H. Taylor and Company write in appreciation of the Car and General Insurance Co., who settled their claim for burglary in full promptly and without any deductions.

EXPERIENCES WANTED.

"G.H., K.C." (Southbourne) would be glad of owners' experiences of electric lamps lighted by a dynamo driven off the rim of front wheel. Are such dynamos suitable for motor bicycles driven at speeds up to twenty-five miles per hour?

"G. L. A." (Ealing) would be glad of readers' experiences as to cost of touring in France.

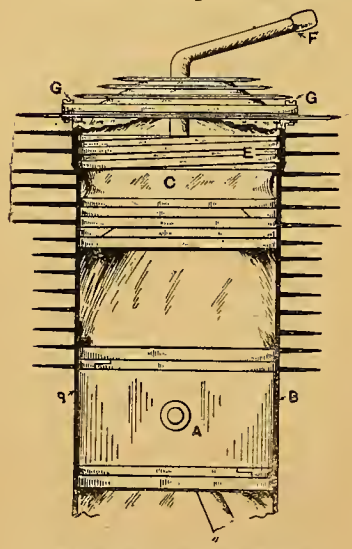
A NOVEL CAP.

WE have just been shown a patent cap produced with a special eye to motoring, which strikes us as rather a good thing for motor cyclists. Except for one patented detail, it is an ordinary waterproof cap of smart cut, provided with button-over ear flaps. The special feature is to be found in the peak, which is duplex and formed of celluloid. The lower flap of the peak is hinged to the front edge of the peak proper, and is provided with a recess to fit the nose, while it is edged with soft material. When the conditions are such as to make goggles advisable, *i.e.*, in wind, dust, or rain, the lower peak is pulled down the face, and it then encloses the physiognomy from the upper lip to the brow in a transparent shield of celluloid. The cap, known as the Phillips, is comfortable, and no goggles are required. It is obtainable from the majority of hosiers and outfitters.

Phillips's patent cap for motor cyclists.
A. Lower flap. C. Peak.
B. Hinge. D. Ventilators.

A SUGGESTED DEVICE FOR VARYING THE COMPRESSION.

"D. P." sends us the following description and sketch of a device for varying the compression, and says: "It is surprising to see no firm making attempts to devise a variable compression device for use on motor cycles. So much has been said and written of the advantages both of high and low compression engines, and there has been so much argument as to which is the better, that it naturally sets one trying to think of some idea to alter the compression whilst riding. An engine if fitted with variable compression should never overheat, as for ordinary running a moderately low compression could be used; but when an exceptionally steep hill was encountered and full power was required all that would be necessary would be to raise the compression, and immediately have the power of a T.T. machine. Appended is a sketch of an idea. A is the ordinary working piston, B the cylinder (somewhat higher than in present day engines), and C a small piston fitted to a screw thread E, so that if the handle F were turned it would turn the screw thread E, which would raise or lower the piston C, so altering the ratio of compression in the cylinder.



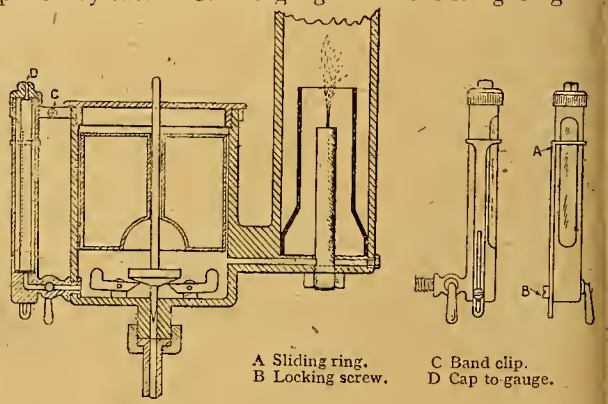
A suggested device for varying the ratio of compression in motor cycle cylinders.
A. The working piston. B. Cylinder.
C. Auxiliary piston. E. Screw thread.
F. Handle. G.G. Detachable head.

"With this engine one would also have all the advantages of a detachable combustion head without its disadvantages, as by simply removing the head G G the piston C could be unscrewed out of the cylinder and all carbon deposit cleaned off the piston and head. There would be no fear of loss of compression, as the piston C is fitted with two rings, which would prevent gas reaching the screw thread, or, in fact, leaking by at all, there would be no wear on the rings, and the slots would not widen."

A CARBURETTER PETROL GAUGE.

WE have pleasure in reproducing a drawing of a petrol gauge for carburetters, which has been sent us by Mr. J. L. Aldridge, 108, Brighton Road, Surbiton, S.W. It has been designed to save trouble in dismantling the carburetter to ascertain the petrol level.

When the gauge is fitted either to the spray or float chamber it is possible to ascertain the level of the petrol by means of the gauge. The sliding ring A should be set to the correct level and locked by the screw B. Once it is set correctly one only needs to turn on the tap to ascertain if the petrol level has altered, and if found incorrect the cover of the float chamber can be removed and the weight on the needle valve adjusted without dismantling the carburetter.



A Sliding ring. C Band clip.
B Locking screw. D Cap to gauge.

The device is provisionally protected, and the patentee is open to entertain offers for its manufacture.

COLOURED MAGNETO DIAGRAMS.

THE Bosch Magneto Co., Ltd., 40-42, Newman Street, Oxford Street, W., have produced a series of charts dealing with the DA2 magneto, similar to those issued with reference to the car magnetos. The book of charts should be in the possession of every motor cyclist, as with its aid the rider can get to know his magneto machine thoroughly at the expenditure of the least possible amount of trouble. Every material used in the construction of the magneto machine is shown in its correct colour, so that it may at once be recognised on referring to the actual article. In addition to the above, there is a diagram of wiring and a description of the working of the apparatus. No less than seven end views of the machine are given and a longitudinal section, full size, showing every detail in its correct colour. The price is 1s.

SCOTTISH SIX DAYS RELIABILITY TRIALS.

Scene at the start from Murrayfield, Edinburgh.

By Our Special Correspondent.

MONDAY, JUNE 6th.

THE Scottish Trials earned in 1909 the reputation of being the sternest test to which touring motor cycles have ever been submitted, and they will not surrender their fame in 1910. But they fail to secure as many entries as they deserve, partly owing to the fearlessness of the test they provide, partly to the expense of competing, and partly to the T.T. coming so soon before them. Only nineteen riders faced the starter at the Murrayfield car terminus outside Edinburgh on June 6th. The names and mounts of the stalwarts were given in my reference to the start in last week's issue, but I repeat the list for reference.

CLASS I. Allowed 10m. extra for each section.

S. J. K. Thomson (8 h.p. Bat, single-geared, and rigid sidecar).
*W. W. Douglas (2¾ h.p. Douglas with two speeds).
*G. L. Fletcher (2¾ h.p. Douglas with two speeds).
*P. Phillips (2¾ h.p. Douglas with two speeds).
*J. S. Holroyd (1¼ h.p. Motosacoche).

CLASS II.

P. W. Bischoff (3½ 1909 Triumph).
W. Pattullo (3½ 1908 Triumph).
J. T. Wood (3½ Zenith).
*W. Pratt (3½ Phelon and Moore).
J. Donaldson (3½ Bat).
*Bert Yates (3½ two-speeded Humber).
A. F. Downie (3½ Ariel).
*J. Slaughter (3½ Ariel).
R. A. Macmillan (5 Bat).
H. S. Bilbe (3½ two-speeded Humber).
A. V. Downie (3½ Ariel).
A. A. Hay (3½ Matchless).
W. Houghton (3½ Bradbury).
G. A. Alexander (3½ Excelsior).

*Trade rider.

Several of the machines deserve a line of special description. The Douglas trio, as I stated briefly last week, appeared for the first time in public with a two-speed gear, a miniature duplicate of the old Humber tricar, the gear box being bolted to the bottom tube of the frame under the front cylinder, and driven by chain off the engine, the drive from gear box to road wheel being by belt. The front shaft of the gear box is duplex and concentric, sprocket and pulley being within an inch of each other. The gears have ratios of 6 and 9 to 1.—Pratt's Phelon and Moore has sidecar ratios of 5 and 9⅓ to 1 in view of the bad hills. Thomson is up against the toughest proposition of the Trial in attempting to get through on a single-geared machine with a sidecar, but he has actually succeeded in driving the combination up Amulree in practice. To prevent punctures he has roped an old cover minus its beads over the back tyre.

The First Stage Easy.

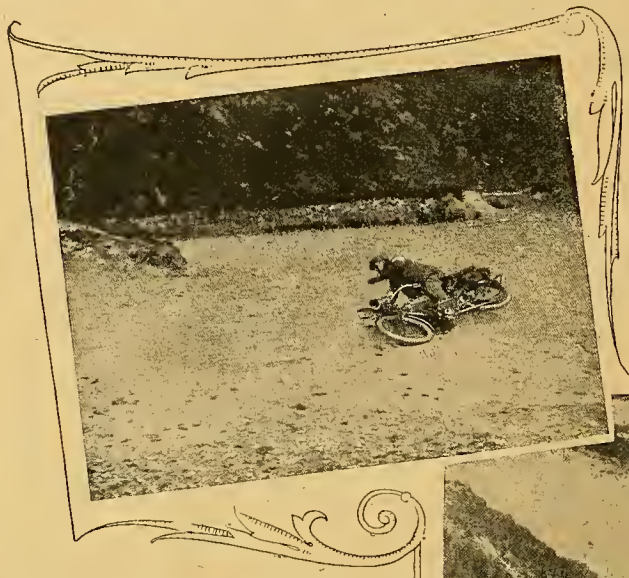
Just to put us in good spirits the trial opened with a very easy stage of eighty-two miles to Arrochar on the shore of Loch Long. The first sixty-three miles consisted of flat, broad turnpike, until near Balloch we ran into view of Loch Leven. Thence to Aberfeldy the scenery absolutely baffled description, and many of the most *blasé* riders declared they had never seen anything so magnificent. For close on a hundred miles the road threaded its way through superb pine forests close to the beach of tremendous lochs. Under a brilliant sun and cloudless sky these vast lochs shimmered a deep ultramarine in their craggy prisons. Sheer from their very brims towered the great Bens, mountain after mountain 3,000 feet high, clad in pine towards the foot, rising higher and higher in shades of roan and violet, and maroon and sage, with here and there a patch of white snow or black rock, till the eye reached their gnarled peaks, clearly silhouetted against a golden haze. Unfortunately, rough going, dangerous corners, and numerous steep little pitches compelled the riders to devote the best part of their attention to the track.

No troubles were heard of until after lunch, when the riders, after skirting the northern end of Loch Long, struck up into Glen Croe, a six-mile zigzag climb, ending in the terrible elbow turn just below the "Rest and be Thankful" stone. The two-speeded brigade were completely routed here, and the average of the performances was mediocre to a degree, for if the sun was hot, a strong wind was blowing up the pass. Overheating was rife, and I especially noticed that the machines which paused for various purposes halfway up had a good deal more ginger in them at the summit than those which came up practically in one run. Three fine climbs were registered. Yates's Humber took the corner close in where the gradient is worst. Bischoff, to whom the hill was strange, looked like muffing the bend and charging the bank, but made a splendid recovery and got up well. Pattullo rode up neatly with pedal assistance. Slaughter and Wood took heavy tumbles, and Donaldson, coming up impossibly fast, ran into the deep ditch and stuck there. All the rest stuck a quarter of a mile or more lower down, but several of them took the corner smartly after cooling their engines.

P. Phillips two-speed Douglas) climbing the precipitous Allargue Hill on the second day.

The Scottish Trials.—

notably G. L. Fletcher. The climb proves that a two-speed gear is of very limited assistance in really mountainous districts unless used in combination with an engine that can keep cool. Quite the finest achievement goes to Thomson's credit. His belt started slipping about halfway up. He adjusted a Whittle belt to a low ratio, and came roaring up on his powerful Bat. Just on the knuckle of the bend he skidded his combination violently, and, while his passenger hung out across his back carrier, swung round and shot up. The wrench, however, proved his undoing later on, for the saddle-pillar stay of the sidecar buckled.



J. Slaughter 3½ h.p. Ariel) suffers a fall at the hairpin bend on Rest and be Thankful.

However, he made a temporary repair with a strap and a stout ashstake purloined from the hedgerow, and when last sighted was going strong.

Scotland is the land of cheap motor spirit, and several competitors are running on fuels seldom heard of south of the Tweed. Several riders got hold of a patent spirit selling at 7d. a gallon, which produces a very pungent exhaust. Its smell made Yates quite ill. Pratt put a match to some more, and it burnt with murky fumes. Fletcher poured some more in a gutter, and reports finding it still there half an hour later. Several others filled their tanks with it, and, taking their machines into the basement of their hotel, were presently requested to leave owing to the stench. Quite a number of the riders are using a fuel known as Ross spirit, having rather a heavy density, and they say they can obtain extraordinary power from it after enlarging their air intakes.

The Official Cars.

Three cars are accompanying the trial—a 20 h.p. Rothwell, carrying officials of the Edinburgh Club, among others R. J. Good, who, with B. H. Davies, is acting as judge: Davies is driving a 20 h.p. Ford, a light-looking American runabout, which climbs most things on top gear; the third car is a 14-16 h.p. Pelsize, driven by W. Hall, of the Vacuum Oil Co.

At 10 p.m. the following are still missing: Two of the three official cars; Houghton's Bradbury (retired owing to collision with cart); Thomson's sidecar (reported ditched near Dalmally); Bilbe's Humber (cause unknown); and Hay's Matchless.

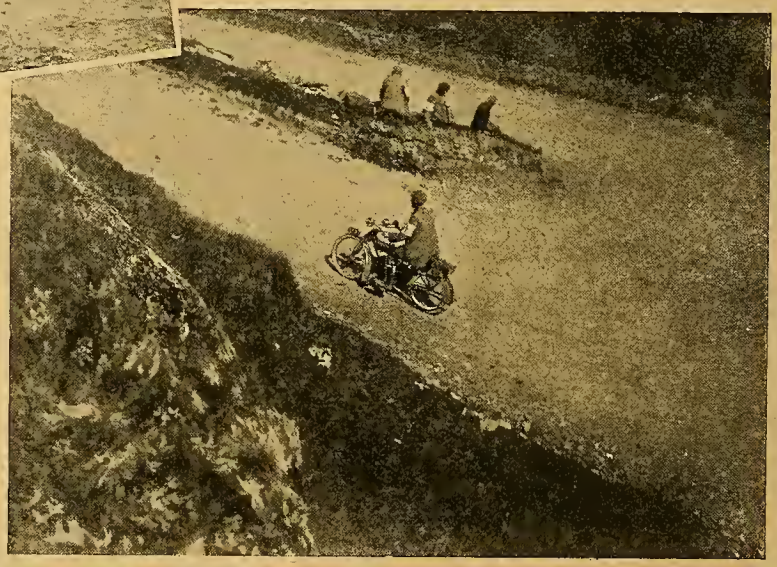
TUESDAY, JUNE 7th.

"Roads and the men I sing!" As was expected, to-day's journey of only 136 miles in length has proved by far the most severe day's ride to which motor cycles have ever been subjected in any competition. From last night's sleeping place, Aberfeldy, we ran into Pitlochry and, crossing the End-to-end route, climbed over Carn Dubh, through Kirk Michael up to the Spittal of Glenshee. There we faced the stiffish climb round the ill-famed Devil's Elbow over Cairnwell Summit, 2,200 feet high, which is the highest road in Great Britain. Coasting down into Braemar for lunch, we ran along a broad slippery turnpike as far as Balmoral Castle, where we took an unspeakably vile cross cut over the shoulders of the moors down to the Cockbridge Hotel.

The Worst Main Road Hill in Britain.

Past this house rises the worst main road hill in Britain, known as Allargue Hill, variously described by the competitors as two Suttons or three Porlocks rolled into one. A rough and dangerous descent, containing one pitch of 1 in 3, ending in a hump-backed bridge, goes down into Tomintoul, whence the moorland route into Grantown is again rough and perilous.

From Grantown to Inverness the roads ought to have been good, as the rain had cleared off soon after breakfast, but fifteen miles out of Inverness we ran into a cold, white mist, and found on the roads a liberal coating of the terrible



A competitor on a two-speed Douglas taking a wide sweep round the same bend.

skid porridge which had made the soft stretches of the mountain roads so treacherous. Out of the 136 miles, only about twenty miles were either dry or smooth. The whole of the remainder were either steep, stony, or slippery, and not infrequently all three at one and the same time.

The veteran trade riders regard the day's journey as equal in severity to any 500 miles of the stiffest A.C.U. trial ever held. The hill off the Balmoral road, for instance, contained many patches of single figure gradient, and was very greasy. Reefs of rock projected up through it, watercourses a foot deep ran across it; it was scarred with deep ruts and strewn with lumps of granite. Two of the descents (from Allargue Summit and down to Bridge of Brown) were positively hair-raising at intervals, and as for climbing, Allargue Hill, two miles in length, averaging 1 in 7, with four wicked turns near the bottom, easily surpasses any English ascent in severity.

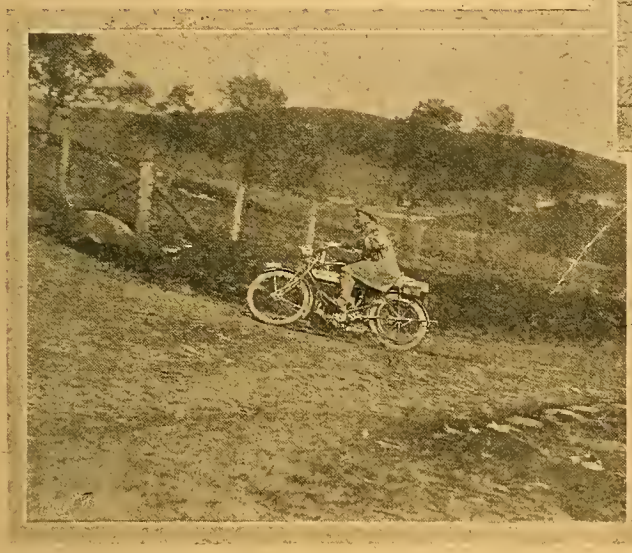
Our little 20 h.p. Ford car only weighs 10 cwt., and is about equal to a 3½ h.p. two-speeder bicycle, climbing all

The Scottish Trials.—

ordinary slopes on top gear. It romped out to the Spittal of Glenshee in fast time, and though anxious to reach the far worse ascent at Allargue we waited to see the leading men slither round the Devil's Elbow on the climb of 2,200 feet up to Cairnwell Summit.

Wood's Zenith-Gradua was the first machine up; the sodden surface made him slow and careful, but he never faltered. Bischoff's Triumph was very perceptibly faster, the rider's previous acquaintance with the hill standing him in good stead. A. F. Downie charged the bank at the top kink of the Elbow, but restarted a few yards higher up. As no other riders came along, we slid and bucketed down into Braemar, and after a hasty lunch tackled the cross cut to the Cockbridge Hotel—easily the vilest road ever traversed by any trial.

Reaching Allargue Hill, which begins just below the inn, we drove the car up and returned to witness the competitors' struggles, providing drinks for the failures low down. The landlord did not recommend whisky. "It's a slow poison, man! I grew tired of life forty-five years ago, and I've drunk whisky ever since, but it hasna taken the smallest effect!" It was impossible for us to watch the riders up the whole of the hill owing to its great length and many bends, and no competitor can be certified officially to have made a clean ascent.



P. W. Bischoff (3½ h.p. Triumph) about to strike a steep section of Allargue Hill

The Worst Turns at the Foot.

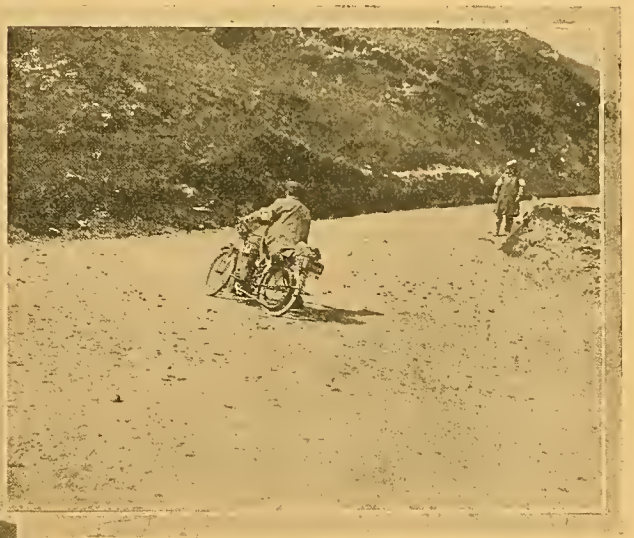
The severity may be guessed from the fact that a two-speeded 7-9 h.p. machine, owned by a spectator, failed completely in its first two essays. The worst gradients and the sharpest turns come right at the bottom. Wood's Zenith rounded the first bend well, but when it disappeared into the wood overhead, the rider was running alongside. Pratt's Phelon and Moore and Yates's Humber passed us going strongly, and are believed to have made clean ascents. A. F. Downie went up a bit at a time. Fletcher and Douglas seemed by the beat of their engines to take the climb in serial numbers. Holroyd was still in the saddle of the Motosacoche when last seen, but was looking as if he could not pedal much longer.

Slaughter's fate is "wrop in mistry," but his engine had a reluctant beat. Bischoff was the only rider who knew the hill of old, but his engine "konked" itself to a standstill just above the first bend, and as he dismounted his belt broke. After a wait of half an hour he tried again, and this time went right up with hard pedalling. Phillips's Douglas, thanks to strong pedal assistance, got up more than halfway, and might have finished if the near pedal, damaged in a previous fall, had not come adrift. The other eight starters were still missing when we had waited two hours on the hill, and finally we walked up to the car and started for Tomintoul.

Patches of Snow.

Just as we noticed great patches of snow far below us, we saw a machine prone on the moor near the road a few hundred yards ahead. Wood had burst a tyre at speed, and his Zenith, charging off the road, had buckled both wheels and its front forks down the rough mountain side.

We helped him to straighten the machine out enough to permit of its being wheeled, and directed him to the nearest railway station, fifteen miles away. On the way home we



A. F. Downie (3½ h.p. Ariel) rounding one of the bad bends on Allargue.

only encountered Bischoff, who is a really clever rider with a good machine, but has been up against cruel luck with frequent punctures and belt breakages.

A few miles of decent going near Grantown put fresh heart into the riders but on the mountains south of Inverness we ran into a death-cold white mist, and a renewal of skid porridge made the travelling rather dangerous. Ten of the eighteen starters got in fairly early, all very tired, their machines mostly very dirty, and the wheels showing the marks of rough usage.

A Marvellous Performance.

Thomson registered perhaps the most heroic performance in the annals of motor cycling by getting his damaged side-car in by 10 p.m. He is reported to have made a splendid ascent of the Devil's Elbow, and to have made a non-stop ascent of Allargue after shedding his passenger at the foot. The two facts that the Bat is single-geared and that Allargue is regarded as too severe for inclusion in the Car Trials bring the merit of this performance into due relief.

Marks Lost on Tuesday.

W. W. Douglas (2¾ two-speed Douglas), 0
G. L. Fletcher (2¾ two-speed Douglas), 18
P. Phillips (2¾ two-speed Douglas), 0
J. S. Holroyd (1¼ Motosacoche), 0
P. W. Bischoff (1909 Triumph), 2
W. Pattullo (1908 Triumph), 26
W. Pratt (3½ two-speed P. and M.), 0
J. Donaldson (3½ Bat), 28
B. Yates (3½ two-speed Humber), 0
A. F. Downie (3½ Ariel), 0
J. Slaughter (3½ Ariel), 0
B. Macmillan (5 Bat), retired
G. A. Alexander (Bat), 60
S. J. K. Thomson (7-8 Bat and sidecar), 60
A. V. Downie (3½ Ariel), 60
H. S. Bilbe (3½ two-speed Humber), missing at midnight
A. H. Hay (3½ Matchless), missing at midnight.

Important Decision.

The judges have decided that owing to the fearful severity of the Braemar-Grantown section and its inadequate road-marking, no competitor shall be debited with any loss of marks over that section. Further, as J. S. Holroyd (1¼ h.p. Motosacoche) was the only man to check into Grantown inside maximum time (he had 2m. to spare), they have awarded him a special prize for his magnificent performance.

The Scottish Trials.—

WEDNESDAY, JUNE 8th.

The third day's journey followed the classic record route up to John-o'-Groat's, and, continuing *viâ* Huna into Thurso, was 174 miles long, or twenty-one miles longer than the sixth day of the 1908 A.C.U. run. In spite of this, the

J. T. Wood busy at work on his Zenith-Gradua at the top of Allargue Hill. This competitor was unfortunate, as, whilst travelling fast, his front tyre burst, causing a fall which buckled both wheels.

competitors regarded it in the light of a picnic after the strenuous work of the first two days, and their Scotch practice has made them so astute at hairpin bends that Berriedale troubled nobody.

There is good news of yesterday's absentees, except poor Bilbe, who is reported to have collided with a lorry on the Spittal of Glenshee. That lion-hearted sportsman, Allan Hay, crackled into Inverness on his 3½ h.p. Matchless at 1 a.m. He has passed his fiftieth birthday, yet he lives on the roads, though he is always in trouble, and cannot start without the help of pushers except downhill. His normal hour of arrival at the night stop is well on towards daybreak, and yesterday, after several tumbles, he walked the last seven miles into Inverness; yet he was up at 6 a.m., as fresh as a lark, and more than a match for anybody who tried to chaff him.

Wood sent word that he was repairing his bent forks at the Cockbridge Inn, and intending to push on at daybreak. He actually reached Inverness at 10.30 a.m. on Wednesday—two and a half hours after we had left. Thomson arrived at 10 p.m., the forcing of a single-geared sidecar outfit over yesterday's route being a feat of unparalleled merit. He fitted two new covers this morning—his 8 h.p. engine rips at the tyres whenever he opens the throttle. Thus Bilbe, Houghton, Macmillan, and Wood were absentees at 8 a.m. to-day.

I saw very little of the riders during the day, and when I attempted to manœuvre the car out of the garage, I made the alarming discovery that turning the steering wheel to the right deflected the road wheels to the left, and *vice versa*; this was due to an impact with a collie on Tuesday, and took an hour to remedy, so we were late in starting.

Baffled Experts.

Overtaking the field by Brora, we were presently in difficulties with the carburetter of the Ford. The three *soi-disant* experts in our crew, A. D. Draper, J. W. Rutter, and B. H. Davies, spent two hours on it to no effect, till at last some inspired genius started the engine up for the hundredth time, and the car ran better than it had ever done before. No one knows what was wrong, nor how it was remedied. Our photographer went on to Berriedale with the Rothwell car, and was marooned there by his heartless driver minus any lunch. He reports that all the men took this tricky ascent cleverly.

We found Hay mending his belt in Berriedale, and presently Wood overtook us on his Zenith, having ridden 180 miles since sunrise, and having still fifty more to cover. Presently we repassed him, busy with tyre troubles. Bischoff is also experiencing cruel luck with his tyres. By truly Herculean labours he managed to take out both wheels in the adjustment hour this morning and to change his covers over, but he has had four more punctures during the day.

At Wick, Mr. Robertson, who has despatched so many aspirants for record honours upon their arduous journey, gave us the news of Hugh Gibson's glorious sidecar record, which reminded us of the equally meritorious achievement Thomson is even now engaged upon. He has straightened his buckled stay, cut it down, and re-attached it at a different angle, and his corner work on the 1 in 5 hill elbows is enough to make a marble statue's hair stand on end. This is by compulsion, as if he ever let his single-geared engine slow down seriously on such grades, it could never pick up.

Did he Lean Inward or Outward?

We ran into John-o'-Groat's for tea, and as we left the veteran Hay crackled up—he is not an advocate of silence. We pushed him off again, and following him closely down the Thurso Road saw him approach one of the right-angle corners near Huna at 40 m.p.h., leaning over at an inclination of something like 30°. There was a cloud of dust, a crash and a thud, and when we got up nothing was to be seen of the Matchless, while its rider was lying through the bottom gap of a barbed wire fence, wagging his head ruefully. We extricated him, not a whit dismayed, and got assistance to haul his machine out of a deep ditch, in which it had disappeared from view.

Hay regards it as his *métier* to provide the comic relief of the trials, but though he never takes himself seriously, he is quite the toughest sportsman of the whole crowd.

We then drove into Thurso without further incident after a glorious day's run of 174 miles under a burning sun. Entrants for the A.C.U. End-to-end trials will be relieved to hear that excepting a very few miles immediately south and north of Inverness, and a short patch near Dalwhinnie, the road they will traverse is in exceptionally good condition this year. The Scottish car trials, which usually cut up portions of the route rather severely, have been abandoned, and unless severe weather is encountered the going next month should be good.

A Clever Temporary Repair.

A. F. Downie has managed a clever piece of riding. His drain tap came adrift from his petrol tank; he managed to plug it with a lump of soap, and using his handkerchief as a lashing rode for many miles. Finally the lashings came adrift when time was precious, and he held the soap plug in position by hand, changing hands from time to time, as either hand was required for lubrication purposes, etc.

A competitor at the bad bend on Berriedale hill, travelling northwards. The gradient at this point is 1 in 5½.

Thomson's repair to his sidecar stay turns out to be a clever piece of amateur mechanics, for arriving in Inverness very late at night he pushed his machine into the hotel porch, straightened the bent tube at the fire in the lounge, and cut it with an ordinary hand file. Yates's machine is keep-

The Scottish Trials.—

ing exceedingly clean, and the Motosacoche has run most consistently.

The following is a statement of marks lost up to date:

	First two days.	Wed.		First two days.	Wed.
Thomson ...	120	0	Yates ...	0	0
Douglas ...	0	0	A. F. Downie	0	*
Fletcher ...	31	0	Slaughter ...	38	0
Phillips ...	0	0	Macmillan ...	Retired	—
Holroyd ...	0	0	Bilbe ...	Retired	—
Bischoff ...	12	0	A. V. Downie	60	*
Pattullo ...	31	0	Houghton ...	Retired	—
Wood ...	60	60	Alexander ...	120	27
Pratt ...	0	0	Hay ...	120	60
Donaldson ...	88	0			

* Denotes lost time card.

Note.—The maximum number of marks which can be lost on one day is 60.

THURSDAY, JUNE 9th.

The fourth day's route began with the Betty Hill section, along which most riders lost their chance of a gold medal last year, but the weather conditions were a pleasant contrast. Last year we had pouring rain and boisterous winds, to-day there was scarcely a breath of air and the sun was grilling, while the surface was at any rate no less atrocious. Fletcher, however, had a nasty smash, seriously damaging his front forks. Thomson wired yesterday for two Kempshall covers, hoping to break a long sequence of tyre troubles, but they did not fit his rims, and further punctures and bursts delayed him. Phillips was also missing at lunch, and up to the time of writing W. W. Douglas is the sole representative of his trio. After lunch at Bonar, the men took the picturesque cut over Aultramein Hill into Dingwall, and following the record route to past Beauly, turned off at Glen Urquhart, and entered upon the most picturesque stretch of the entire route. The glen is narrow and exceedingly lovely, with a little brook trickling beside a passable road. The drop from the summit into Drumnadrochit struck the writer as about the worst hill he has ever seen. Passing Drumnadrochit we reached the shores of Loch Ness. For twenty miles a narrow terrace of red road clings desperately to the sheer scarp overhanging the loch, the finest freshwater lake in Britain. The six-foot lane winding through balmy forest of larch and pine was not an ideal place in which to catch up time, and must have troubled five riders whom we saw littered along three miles of road near Beauly: Holroyd and A. F. Downie with tyres, and Bischoff, Wood, and A. N. Downie with broken valves—a common trouble on this baking day. They have all arrived, and have ridden pluckily round corners where many a car would have to reverse. Pratt, Douglas, Slaughter, Yates, and Pattullo complete the ten who have arrived up to 9 p.m. The latter have all had an easy day.

Three competitors in the trials ascending one of the steep Scottish passes in company. The rider in the foreground is J. Slaughter (3½ h.p. Ariel), who was awarded a silver medal. W. W. Douglas (2¾ h.p. Douglas), who won a gold medal, is on the right, and Bert Yates (3½ h.p. Humber), a gold medal winner, in the background. Observe the group of canine spectators.

The veteran competitor in the Scottish Trials, Alan H. Hay (3½ h.p. Matchless), who, despite one or two falls and a difficulty in starting, pluckily stuck to his task until Friday, when he was forced to retire through another fall.

The competitors are looking forward with some trepidation to the climb out of Fort Augustus to-morrow, a straight road rising for 1,000 yards, average gradient 1 in 5, reputed to contain a patch as near 1 in 3 as possible. Owing to the heat and numerous hills, the consumption of oil has been phenomenal, some using half a gallon per diem. The engines are now somewhat carbonised, and it is not likely there will be many entries for the special time prizes to-morrow. Fletcher has just arrived with his frame six inches askew. It is miraculous how he can steer it at all. He rode off the road into a ditch, and later rammed a cow, cannoning off into another ditch. Alexander is also in, and Bilbe, who retired on Tuesday, has ridden his Humber across to greet us. He took a bank at Kirk Michael to avoid two carts, and found it prudent to retire.

The following is the marks register for Thursday: Losses—Fletcher, 15 (collision); Phillips, 46 (tyres); Wood, 22; Donaldson, 60; A. F. Downie, 10; Alexander, 60; Hay, 60; and Thomson, 60. Holroyd, Douglas, Bischoff, Pattullo, Pratt, Yates, Slaughter, and A. V. Downie lost no marks.

FRIDAY, JUNE 10th.

Fort Augustus to Aberfeldy *via* Errogie, the Grampians, and Ballinluig, 122 miles.

The timed hill-climb at Glendoe was the *pièce de résistance* of to-day, and as the hill commenced one mile from the hotel most of the competitors walked out last night to inspect it. As is usually the case, the gradient has been vastly exaggerated, though a hill including five separate pitches of 1 in 5 must always command respect. Entry was optional, and Hay, Pattullo, Holroyd, and the younger Downie preferred to surmount the hill unofficially. The Ford was the only car present capable of climbing the severe grade, and it was kept pretty busy laying telephone wires, conveying flag-waggers, etc. It was decided to time the men up to the danger board, the length thus being increased to 1,200 yards, a dip some twenty yards in length giving engines a chance to pick up after 980 yards. Just before we all started out Hay and Donaldson got in after spending the night on the road, with a whole Odyssey of adventures to relate. Hay, after his usual pack of trouble, had waited for daybreak, regarding the Loch Ness road as too dangerous for night driving, while Donaldson had been busy at work on his tyres. The general level of the performances on the hill was excellent, in view of the fact that the machines have undergone a tremendous gruelling, and that the hill is unquestionably formidable.

The Scottish Trials.—

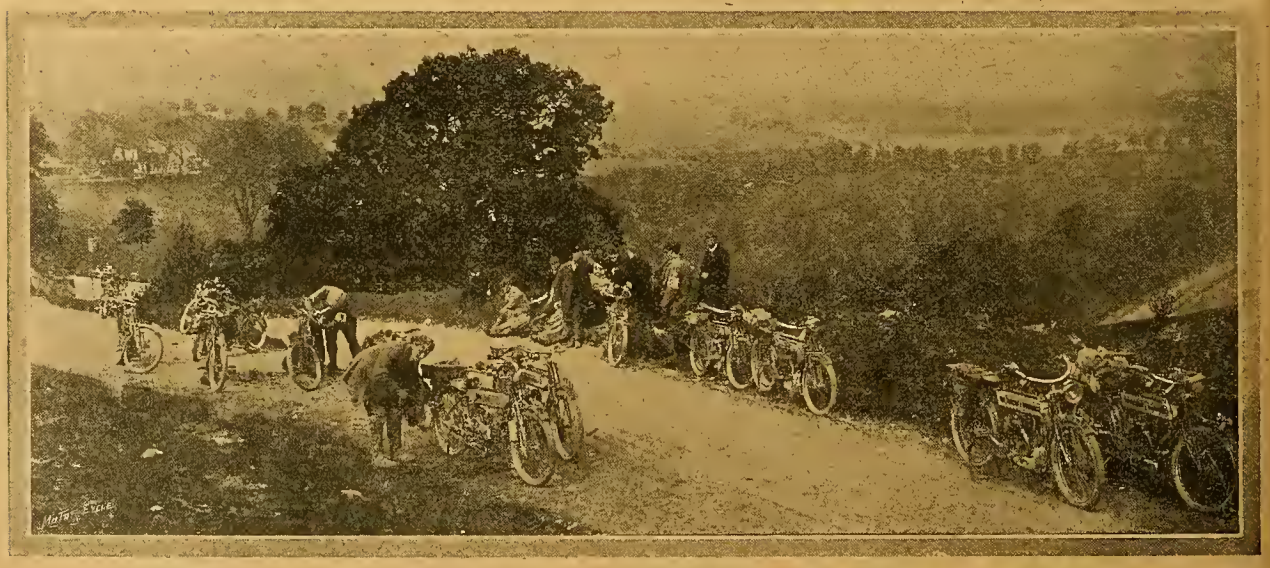
Competitor and Machine.	Time.
S. Thomson (8 h.p. Bat, single-geared sidecar, heavy passenger) ... ... The 8 h.p. J.A.P. engine scarcely slowed a tick on a 5 to 1 gear. Both men assisted the machine by jerking their bodies forward. The writer never thought there was anything in this trick, but it seemed to help them on the worst 1 in 5 bit. Second fastest time.	1m. 54⅕s.
W. W. Douglas (2¾ h.p. two-speed Douglas) ... Slow. Pedalled hard the whole way up.	3m. 8s.
G. L. Fletcher (2¾ h.p. two-speed Douglas) ... Very good indeed. Gave a few strokes with the pedals now and again. His first ascent, faster still, was missed by the time-keepers.	2m. 13⅕s.
P. Phillips (2¾ h.p. two-speed Douglas) ... ... Fair.	2m. 55⅖s.
P. W. Bischoff (1909 Triumph) ... ... Had under-estimated the hill, and, gearing too high, failed low down. Afterwards climbed the hill fast unofficially in 1m. 42s. on a lower gear.	———
J. T. Wood (3½ h.p. Zenith-Gradua) ... ... Made a driving error on first steep pitch, but after running alongside over the knuckle, picked his engine up and finished very fast.	2m. 18⅖s.
W. Pratt (3½ h.p. P. and M.) ... ... Sailed up quite easily, using his low gear all the way.	2m. 18⅖s.
J. Donaldson (3½ h.p. Bat-J.A.P.). Fastest time... Magnificent climb. Some consolation for his night on the road. Had to use his brakes hard on one of the top bends.	1m. 31s.
B. Yates (3½ h.p. Humber two-speed) ... ... The Humber engine licked up the grade easily.	2m. 22⅖s.
A. F. Downie (3½ h.p. Ariel) ... ... Failed.	———
J. Slaughter (3½ h.p. Ariel) ... ... Went up easily and fast.	1m. 59⅕s.
G. A. Alexander (3½ h.p. Excelsior) ... ... A neat climb. Slow, but sure.	2m. 8⅖s.

Of those who did not enter for the special hill-climb prizes Hay (3½ h.p. Matchless) failed close to the bottom and hired men to push him up. The same applies to A. V. Downie. Dr. Pattullo went up quite fast and ought to have entered for the timed sprint. Holroyd's Motosacoche took itself up at about five miles per hour with its owner walking comfortably alongside. This is Holroyd's usual method of ascending severe hills.

A good impression of a winding Scottish hill. The rider is P. W. Bischoff (1909 Triumph) ascending Glendoe.

Rain began to fall soon after the last man had passed the summit, and continued as far as Pitlochry, the going being mostly rather rough, but not greasy. The authorities are doing their best to convert the Grampian Road into a first-class highway. We passed several gangs of roadmenders, who spend weeks up in the pass, sleeping in a caravan at night, and constantly supervised by the surveyor, who uses a De Dion car. The road is being widened, bends eased, and grades toned down, but neither the foundation nor the surface is hard as yet, and a little bad weather still makes the road very unpleasant.

Passing Thomson's sidecar we noticed that the frame was again strained, and the machine was tilted towards the sidecar in dangerous fashion, while the fore end of the wicker chair was evidently fouling any bumps in the road. Having lost his front mudguard on the first day, he was greatly troubled by mud-flinging, which stuck up his carburetter slides. Ere long this plucky pair, Thomson and his passen-



Scottish Trials. Competitors and their machines assembled at the foot of Glendoe between Loch Ness and Whitebridge.

The Scottish Trials.—

ger Somerville, had to uncouple the sidecar and carry it on their heads over a river, the bridge being broken down by floods. At Ballinluig the men turned off the End-to-end route to follow the north bank of the River Tay, cross at Grantully Bridge, and so into Aberfeldy.

To-day's marks list is as follows: Lost 0, Douglas, Fletcher, Phillips, Holroyd, Bischoff, Wood, Pratt, Yates, A. F. Downie, Slaughter, and A. V. Downie; Donaldson, 46 (tyres); Alexander, 60 (tyres); Thomson, 60 (various); Hay, 66 (not arrived yet).

Formula Results in Glendoe Hill Climb.

CLASS I.—Single-cylinder Handicap.

1.	Donaldson ...	665.9	5.	Yates	406.1
2.	Slaughter ...	515.9	6.	Alexander ...	390.01
3.	Wood	450.9		Bischoff and A. F. Downie	
4.	Pratt	412.8		failed.	

CLASS II.—Twin-cylinder Handicap (Formula).

1.	S. Thomson ...	652.1	3.	P. Phillips ...	327.4
2.	G. L. Fletcher ...	436.6	4.	W. W. Douglas...	296.9

CLASS III.—Open Scratch.

1.	Donaldson ...	1.31	3.	Slaughter ...	1.59⅕
2.	Thomson ...	1.54⅕			

SATURDAY, JUNE 11th.

Aberfeldy to Edinburgh, *via* Amulree, 109 miles. The close of to-day's run was the ascent of the terrible Amulree Hill from the Sma' Glen side, and after the cloudburst of Friday everyone was anxious about the surface of the steep and twisty road up Glen Quaich. Fortunately for the competitors the storm had not reached so far, as we soon discovered when we drove our trusty little Ford car out along the Killin Road and put it at the Kenmore side of the hill. This is the incline which the A.C.U. men are being taken out of their road to face. Frankly, we consider it unlikely that many of them will get up. Bischoff was the first man up. He took the bottom bend badly, and stopped his engine, but jumping off restarted very cleverly, and by dint of hard pedalling reached the summit in the saddle. Other riders afterwards took the bends better, but nobody else made quite so easy an ascent. Douglas failed at the lower bend, his engine having had quite enough of it. Yates hugged the bottom bend too closely for success, rounded the second, when his engine being nearly done he freed it, and aided by a push from the spectators, got off again, and all but reached the top.

Wood, A. F. Downie, Pattullo, and Pratt all stuck at the beginning of the elbow, the latter charging the bank with considerable force. Pattullo on restarting finished the 1 in 6.2 portion above the elbow better than anybody else except Fletcher.

Slaughter had been seen running alongside on one of the lower 1 in 5 stretches, and we expected nothing startling from him in consequence. However, he electrified us all by

Spectators on the banks of Amulree watching P. Phillips (2¾h.p. Douglas) rounding the first bad bend.

taking the elbow in brilliant style, though his engine failed again 100 yards higher up. The little Motosacoche took the lower pitches in its usual leisurely fashion, Holroyd slacking the jockey pulley to permit a little belt slip, and walking alongside at four or five miles an hour, while the machine took itself up "and a bit of him," as he puts it.

Phillips next appeared and negotiated the corner quite nicely, only to fail above it. Fletcher puffed up to within 100 yards of the elbow, stopped his engine with the utmost *sang froid*, and asked McGregor for a route card. After a short cool he restarted, and climbed to the very summit in neat style on his low gear. A. V. Downie and Alexander failed down on the foothills. Everybody was eagerly wait

The judges, Messrs. B. H. Davies and R. J. Good, examining the machines at Murrayfield, Edinburgh, at the conclusion of the trials.

The Scottish Trials.

ing for Thomson and Somerville with their 8 h.p. Bat one-gear sidecar. At last the combination swung round the final bend below the elbow, and though both men were jerking their bodies in unison, it was plain from the beat of the engine that the 8 h.p. Bat was a trifle weary. With wonderful precision they altered their policy. Dismounting earlier than they had intended, they ran the machine round the lower bend, hauling it straight, pushing it up, and pressing it down as it leapt off the rough surface, with marvellous judgment and agility. Bucking like a broncho, it pounded quickly round the upper bend, both men wrenching, shoving, and leaning on it as they galloped alongside up the 1 in 6 slope, amid loud plaudits; but flesh and blood could not stand such a strain for long, and eighty yards higher up Thomson sadly stopped the engine, but many willing hands helped them off ten minutes later.

Saturday's Results.

Full marks were gained by W. W. Douglas, G. L. Fletcher, P. Phillips, J. S. Holroyd, P. W. Bischoff, W. Pattullo, J. T. Wood, W. Pratt, B. Yates, and J. Slaughter.

J. Donaldson, V. Downie, S. J. K. Thomson, and G. A. Alexander lost sixty each. F. Downie lost three. A. Allan Hay retired owing to an accident on the Friday afternoon.

The provisional results are as follow:

SPECIAL PRIZES.

J. S. Holroyd (1¼ h.p. Motosacoche), best performance on a lightweight; also medal for best performance on Braemar-Grantown section.

P. W. Bischoff (3½ h.p. Triumph), best performance using Ross spirit.

The three Douglas riders have been awarded the team prize.

GOLD MEDALS—FULL RELIABILITY MARKS.

W. W. Douglas (2¾ h.p. Douglas), J. S. Holroyd (1¼ h.p. Motosacoche), W. Pratt (3½ h.p. P. and M.), and Bert Yates (3½ h.p. Humber).

SILVER MEDALS.

G. L. Fletcher (2¾ h.p. Douglas), lost 28 marks; P. Phillips (2¾ h.p. Douglas), 46 marks; P. W. Bischoff (1909 Triumph), 12 marks; W. Pattullo (1908 Triumph), 31 marks; F. Downie (3½ h.p. Ariel), 13 marks; and J. Slaughter (3½ h.p. Ariel), 38 marks.

BRONZE MEDALS.

J. T. Wood (3½ h.p. Zenith-Gradua), lost 142 marks; J. Donaldson (3½ h.p. Bat), 254 marks; G. A. Alexander (3½ h.p. Excelsior), 308 marks; S. J. K. Thomson (7-8 h.p. Bat and sidecar), 241 marks; and V. Downie (3½ h.p. Ariel), 120.

HERTS COUNTY A.C. OPEN HILL-CLIMB.

Aston Hill-climb. A general view at the starting point of the Herts. County open Hill-climb at Aston Hill, Tring, on Saturday last.

THE annual open hill-climb for motor cycles, promoted by the Motor Cycle Section of the Herts County A.C., was originally fixed for Saturday, 7th May, but owing to the lamentable death of His Majesty King Edward the event was postponed until Saturday last. The greatest difficulty with which the committee of the club had to contend was to fix upon a date which did not clash with any other important motor cycle fixture, and in this they succeeded, although by holding it on Saturday they unfortunately clashed with an important fixture of their own Car Section, who were holding a motor gymkhana near Watford, thus dividing the interest of their own members. A splendid entry, totalling 111 machines, had been received, but as was to be expected, as a result of the postponement, a number of these were unable to put in an appearance on this occasion, only sixty-one answering to their names when called upon. This was, however, sufficient to afford a most interesting afternoon's sport. The Rose and Crown Hotel, Tring, was the club headquarters for the day, and here the weighing arrangements were carried out under the direction of Messrs. F. G. Carter, A. F. Petch, H. O'Hagan, and Dr. Upcott Gill. As usual, one or two of the competitors arrived late, quite expecting to be weighed in, and they were able to tell such pitiful tales of mishaps and delays on the road that the officials felt compelled to relent and allow them to be weighed. Whilst the weighing was in progress, the judge, Mr. J. W. G. Brooker, was very busy examining every detail of the machines, to see that they conformed to the necessary requirements. These formalities over, competitors and officials made their way to Aston Hill, which is about three miles from Tring on the road to Wendover, and is the same hill upon which the previous hill-climbs have been held. It is about 1,320 yards in length, and has a total rise of about 440 feet.

Disfiguring the Countryside.

On arriving at the hill one would have imagined that some enterprising advertising agent had hired the place, for the railings near the starting point had been disfigured by advertisements of rival vendors of motor spirit—a practice which is much to be deprecated, and which the committee, in the interests of the club, would do well to consider the advisability of putting a stop to in future. Prior to the start of the competition a number of non-competitors amused themselves by riding up and down the hill, but the majority of them made very sorry exhibitions, several having to make two or three attempts before they were able to reach the top, whilst others failed hopelessly to get to the summit. The surface of the hill was in a very loose state as a result of the recent heavy rains in the district, two patches at the top being particularly dangerous, one about fifty yards before

Herts. County A.C. Open Hill-climb.—

the riders reached the finishing timekeeper and the other about thirty yards beyond. It was the fast division who were particularly affected by these patches, as owing to the speed at which they were travelling they had to take the slight bend near the finish fairly wide. This took them on to the loose patch and appeared to affect their steering, consequently before they were able to get themselves straight again they were upon the second patch, and had the utmost difficulty in keeping upright. Both F. A. Applebee and A. Mackenzie Cott fell through this, fortunately without any serious damage to themselves, whilst H. Lister Cooper had a very narrow escape at the same spot. A large number of spectators were at the various points of vantage along the course, whilst a number of machines and cars carried the Cambridge identification plates, having apparently brought over a number of 'Varsity men to see their crack, A. Mackenzie Cott, perform.

The following are the results:

CLASS A.—For lightweights, weighing not more than 130 lbs. in touring equipment. Pedalling allowed.

		Figure of merit.
1.	E. Clark (2¾ h.p. Douglas)	.961
2.	W. H. Islip (2¼ h.p. Royal Enfield)	.945
3.	F. E. Williams (1¼ h.p. Moto Velo)	.843
4.	O. L. De Lissa (1½ h.p. Motosococche)	.817
5.	J. V. Robinson (2¾ h.p. Douglas)	.799
6.	E. Bennett (2½ h.p. Grandex)	.796
7.	L. M. Redding (2¾ h.p. Douglas)	.730

Ten started. Clark made a splendid climb, as also did Islip.

CLASS B.—For single cylinders, standard touring models. Cylinder capacity not to exceed 499 c.c.

		Figure of merit.
1.	E. A. Burney (3½ h.p. De Haviland)	1.101
2.	E. H. Colliver (3½ h.p. Triumph)	1.094
3.	Capt. Sir R. K. Arbuthnot, Bart. (3½ h.p. Triumph)	.997
4.	R. M. S. Maxwell (3½ h.p. Triumph)	.993
5.	F. W. Applebee (3½ h.p. Centaur)	.919
6.	C. C. Cooke (3½ h.p. Triumph)	.895
7.	C. Cross (3½ L.M.C.)	.885
8.	F. W. Chase (3½ h.p. Centaur)	.735
9.	G. S. Carter (3½ h.p. Triumph)	.684

Ten started. Capt. Sir R. K. Arbuthnot apparently tried to start with his exhaust lifter down—a mistake which he soon rectified. Colliver appeared to be the fastest in this class, and came up in good style, whilst Burney, Applebee, and Capt. Arbuthnot were only a trifle slower.

CLASS C.—For single-cylinders. T. T. models. Cylinder capacity not exceeding 499 c.c.

		Figure of merit.
1.	H. Lister Cooper (3½ h.p. Triumph)	1.228
2.	W. G. McMinnies (3½ h.p. Triumph)	1.043
3.	C. A. Williams (3½ h.p. Triumph)	1.010
4.	O. C. Godfrey (3½ h.p. Rex)	1.009
5.	R. T. Wood (3½ h.p. Triumph)	.978
6.	C. C. Cooke (3½ h.p. Triumph)	.962
7.	W. A. Jacobs (3½ h.p. Rex)	.914
8.	F. W. Applebee (3½ h.p. Centaur)	.907
9.	F. W. Chase (3½ h.p. Centaur)	.739
10.	H. Bevir (3½ h.p. L.M.C.)	.722

R. M. Brice also started in this class, but in mounting he appeared to knock the spring off his contact breaker cover, thus allowing the cover to come adrift.

H. Lister Cooper was undoubtedly the fastest in this class, the next best being apparently Godfrey, McMinnies, and Wood.

Cooke started with his clutch, but in doing so stopped his engine. He then returned and made a running start.

CLASS D.—Multi-cylinders. Standard touring models. Cylinder capacity not to exceed 670 c.c.

		Figure of merit
1.	C. M. Down (5 h.p. Indian)	.84
2.	J. Thompson (5 h.p. Indian)	.754
3.	F. A. Hardy (5 h.p. V.S.)	.738
4.	M. Geiger (5 h.p. V.S.)	.702

J. Seyfried (6 h.p. N.S.U.), figure of merit .74, was third, but was disallowed owing to c.c. being too large, therefore F. A. Hardy was placed third and M. Geiger fourth.

W. O. Bentley (5 h.p. Indian) started in this class, but as he had not been weighed, was disqualified. His figure of merit, 1.015, was best.

CLASS E.—Multi-cylinders. T.T. models. Cylinder capacity not to exceed 670 c.c.

		Figure of merit.
1.	S. C. Perryman (5 h.p. Blumfield)	.883
2.	J. Thompson (5 h.p. Indian)	.851
3.	J. P. Le Grand (4 h.p. Rex)	.774
4.	M. Geiger (5 h.p. V.S.)	.747
5.	F. A. Applebee (4 h.p. Rex)	.555

Applebee just after crossing the finish lost control of his machine, ran into a wooden fence with great force, but fortunately escaped with a slight injury to his wrist and damaged clothing.

CLASS F.—Variable gears, single or multi-cylinders. Machine to be stopped and restarted on the hill within a distance of 15 yards.

		Figure of merit.
1.	B. Marians (3½ h.p. P. and M.)	.764
2.	F. A. Hardy (5 h.p. V.S.)	.683
3.	R. G. Goslett (3½ h.p. P. and M.)	.592
4.	J. Seyfried (6 h.p. N.S.U.)	.577
5.	V. Underhill (3½ h.p. L.M.C.)	.522
6.	W. G. Ayling (3½ h.p. Midget)	.38

Geiger failed to restart after the compulsory stop. Hardy restarted in remarkably smart style, and was much applauded; by far the best performance, but only second on formula. Goslett stopped his engine, and remounted by running alongside.

CLASS G.—Single or multi-cylinder. Fastest time to win.

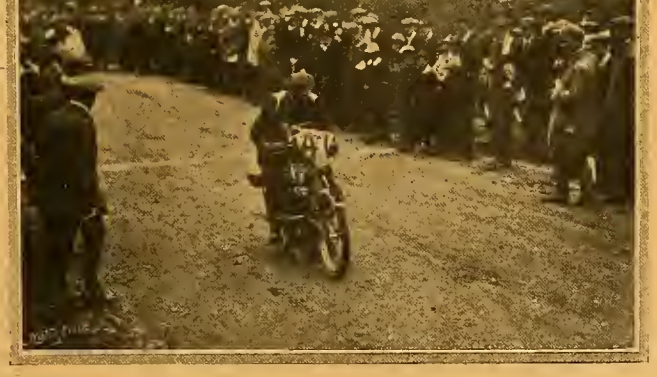
1.	H. Lister Cooper (3½ h.p. Triumph)	X
2.	A. Mackenzie Cott (8-10 h.p. King)	X + ⅘s.
3.	E. D. Dickson (7 h.p. Indian)	X + 2s.
4.	E. Gwynne (7 h.p. Indian)	X + 4⅕s.
5.	R. M. Brice (3½ h.p. Brown)	X + 6⅕s.
	C. M. Down (5 h.p. Indian)	X + 6⅕s.
6.	F. P. Dickson (3½ h.p. Zenith-Gradua)	X + 10s.
7.	J. Thompson (5 h.p. Indian)	X + 10⅘s.
	J. Seyfried (6 h.p. N.S.U.)	X + 10⅘s.
8.	F. C. Clements (5 h.p. Rex)	X + 12⅕s.
9.	C. K. Wigram (6 h.p. Bat)	X + 12⅖s.
10.	C. C. Cooke (3½ h.p. Triumph)	X + 14⅘s.
11.	M. Geiger (5 h.p. V.S.)	X + 20⅗s.

Lister Cooper made a splendid ascent, as also did Mackenzie Cott; the latter, however, after passing the timekeeper and when travelling at a great speed, came a heavy cropper, fortunately without doing any damage to himself.

The timekeepers were Messrs. F. Straight and D. K. Hall.

Signalling on the hill was carried out by a staff of signallers from the Watford Territorials.

The classes were run through very expeditiously, and Mr. C. C. Cooke, the hon. secretary, and his assistants are to be congratulated upon the general excellence of the arrangements.



F. A. Hardy (5 h.p. V.S.) restarting in the Variable Gear Class.

THE END TO END SIDECAR RECORD.

THE HOLDER, HUGH GIBSON

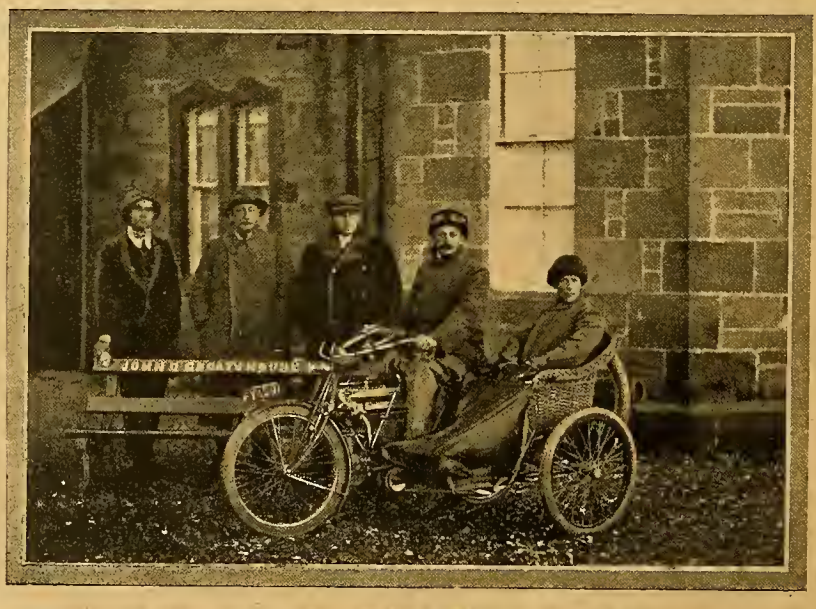
"THE finest ride on record" is the general opinion of Hugh Gibson's new sidecar record from Land's End to John-o'-Groat's. Just think! 886 miles of up hill and down dale in 40h. 47m. on a 3½ h.p. single-cylinder, single-geared machine, with sidecar and passenger. It really makes one wonder if the Auto Cycle Union can properly call its six days' event over the same course a "trial." Two years ago, Arthur W. Bentley's ride was considered a wonderful feat, yet Gibson's time is less, despite his handicap of a sidecar and passenger.

In our last issue we gave Gibson's time of passing through certain important centres, but we may again refer to his time-table. He left John-o'-Groat's on a 3½ h.p. 1910 Triumph with Mills-Fulford rigid sidecar attachment, accompanied by George Wray as passenger, at 1.40 a.m. on Monday last week, timed by J. J. Robertson, of Wick. Prior to the start, a member of *The Motor Cycle* staff sealed the vital parts of the machine. Gibson's time-table was as follows:

		Monday.
Left John-o'-Groat's	...	1.40 a.m.
Arr. Beauly (134 miles)	...	7.25 a.m.
Dep. ,,	...	7.45 a.m.
Arr. Perth (266½ miles)	...	12.35 p.m.
Dep. ,,	...	1.16 p.m.
Arr. Lockerbie (388 miles)	...	6.13 p.m.
Dep. ,,	...	6.37 p.m.
		Tuesday.
Arr. Wigan (520 miles)	...	12.50 a.m.
Dep. ,,	...	1.35 a.m.
Arr. Gloucester (654 miles)	...	7.17 a.m.
Dep. ,,	...	7.52 a.m.
Arr. Exeter (764 miles)	...	12.35 p.m.
Dep. ,,	...	1.25 p.m.
Land's End (886 miles)	...	6.27 p.m.
Total time	...	40h. 47m.

The previous record was 51h. 45m., accomplished by M. Geiger and W. Lamm last October, under much more unfavourable conditions and without proper organisation or followers, on a 7 h.p. two-speed V.S. and sidecar.

The above is a brief itinerary of the record, and we took the first opportunity of interviewing Mr. Gibson and gleaning some of his experiences. After congratulating him upon the achievement, Gibson assured us that even in his most sanguine moments he did not anticipate beating the record by more than an hour or two, and on arrival at Wick on the Saturday had quite "a fit of the blues," believing for once his many critics who had said that it was impossible for so small an engine with a single gear to tackle the journey. Next morning, however, he arose in better spirits, and looked forward to a successful run if luck favoured him. The schedule was made out for a start at 2 a.m., but in the far North it is sometimes possible to read a newspaper without artificial light at 1 a.m. The morning luckily proving lighter than usual, the word to go was given by Timekeeper Robertson at 1.40 a.m.


The start from John-o'-Groat's House. This photograph was taken at 1.30 a.m. by natural light.
Photograph by J. G. Humphrey.

Gibson's Own Story of the Ride.

The record-breaker has written his own impressions of the ride specially for *The Motor Cycle:*

"After a restless night, I arose at midnight, feeling quite fit, and was cheered by Robertson's report that there was a following wind, and the glass high. Accordingly I raised the gear to 4¾ to 1, determined to make a good start. A cold wait to obey the photographer, and Robertson and two friends pushed us off with a cheer. One last glance at Groat's, and then eyes on the road. With the engine pulling well, we made a good ascent of the first hill, and then settled down to a brisk speed somewhat over legal. Dunheath proved a regular miniature Sutton Bank, but with a dangerous right-hand turn near the top. I rushed the hill, skidded round the corner, and with light pedal assistance reached the top. Berriedale was approached with a 6 to 1 gear. The first view took our breath away. I crawled round the fearful top corner, my patient victim making some inarticulate expressions as we got round. The descent safely made left me unprepared for the rush necessary to climb the south side. We struggled up a good halfway, and Wray's agility in jumping out was remarkable. We made another start, and I actually got up another 200 yards before our faithful 3 and a bit warned us. Wray was left behind to admire Berriedale, whilst I took the empty sidecar up to the summit. We afterwards raised the gear to 5 to 1. Three miles farther south we found the road closed. Mr. Robertson had warned us of this, and we made a *détour* of one mile *viâ* Ousedale Farm, and had a struggle to reach the main road again, the byroad having a severe gradient, which again called for 'light pedal assistance.'

"We passed two herds of red deer and hundreds of mountain hares, snipe, grouse, rabbits, etc., and I mean to bring my gun with me in the Six Days' Trials.

"The Ord is most distressingly barren country, and for the next ten miles I had some fine practice in corner work. A quick right-hand turn followed by a V left, generally on an up-grade, tested the engine severely, yet the Triumph picked up wonderfully well every time, my sole concern being to keep out of the gutter when swinging round to the left. On through Brora and Golspie, and we now began to pick up time. At Clashmore we were careful not to lose our way, and soon Bonar Bridge appeared in view, the scenery hereabouts (though somewhat blurred) being particularly fine.

"We had now reached another unknown stretch, viz.,

The End-to-end Sidecar Record.—

the mountain road over the Aultnam to Alner, Strurie Hill. This road cuts off eight miles from the Tain road. We geared down to 6 to 1, and climbed the first mile in good style. At the corner we stopped to cool down, driver and engine being overheated. The rest of the hill was climbed with ease. Good time was made to Daginal, where we were alarmed to find that our petrol tank was practically empty. Luckily, it was 7 a.m., and a garage was open. We arrived at Beauly, our first depot for food, etc., at 7.25, having averaged close upon 24 m.p.h. Mr. R. Morien had an excellent repast ready, and the hot porridge was wonderfully invigorating.

"Nearing Inverness, we struck a rather unfriendly wind. We got through the town with only one wrong turn, and then tackled the long drag from Inverness to Carrbridge. The engine pulled finely, and although we were slowed considerably we never had occasion to stop. Nearing Aviemore, we were considerably cheered by meeting J. W. Adamson, of T.T. fame, who had come out from Perth, and over one hundred miles of bad going, to pace us. This is the kind of sportsmanship! Adamson took us a fine pace through Kingussie over the Grampians to Pitlochry. Here we deemed it advisable to take in petrol. Perth was reached at 12.30. My back tyre had suffered most cruelly over the fearfully loose surface on the Grampians, and it was deemed advisable to change the cover. We were hungry and happy.

"David Adamson, another fine rider, now kindly showed us the way through Stirling to Lanark. From Stirling we struck an unmistakably strong head wind, which continued to beyond Lanark. At Lanark we said good-bye to Adamson, and then had our second tyre trouble, the back cover having crept and pulled out the valve at the seating. Ten minutes saw us on the move again, and in a few miles we met a friend on an N.S.U., who had been sent out from Lockerbie by Messrs. Hetherington and Son. We continued at a good speed to within four miles of Lockerbie, where we again ran out of petrol. Two bulbfuls from our unnamed friend just saw us in to Lockerbie. Messrs. Hetherington and Son had everything ready for us at the Blue Bell Hotel.

The Only Engine Trouble.

"Between Lockerbie and Ecclefechan we broke an exhaust valve, this being the first and only engine trouble that we experienced on the ride. When one thinks of the revolutions per minute made, when driving with a 5½ to 1 gear at thirty to thirty-five miles per hour, it is extraordinary that we did not go through many more valves. We reached Shap at 9.15, and stopped to see that lamps and generator were in order. On this section I reclined in the sidecar, and Wray brought us over from Shap to Kendal in some thirty-six minutes. High Borrow was simply eaten up by the Triumph. Steady going at 20 m.p.h. eventually saw us in Wigan at 12.50 a.m., still gaining on schedule. The Royal Hotel had a most sumptuous repast. Messrs. Leigh and Holford Jones rendered great assistance at Wigan, and also accompanied us for some distance. Hart-Davies, who had punctured near Whitchurch, was making the sleepy birds stare in amazement at the charm of his voice! When I passed him, however, I had another great henchman at my command in the person of Rupert May, whose knowledge of this bewildering stretch of road is second to none. May soon had me (despite unhappy memories) going 'all out,' and my engine seemed to improve every mile. The hills that abound near Bridgnorth were taken in fine style, and Hart-Davies from the rear was astonished at the way we got along. May, whose help had again been of immense value, had magneto trouble at Bridgnorth, and was reluctantly compelled to say good-bye, which he did in his own quaint way by nearly hitting me in the eye with a piece of belting or insulating tape. I freely forgive him.

"Hart-Davies now took me in hand, and accompanied us right through to Land's End. Near Tewkesbury we ran into a heavy thunderstorm, and lost ten minutes putting on our overalls. Belt slip was now prevalent, and we ran for a few miles on a leather Watawata belt which, fortunately, I carried.

"At Gloucester our arrangements were in the hands of A. Hart-Davies at the Bell Hotel, and this depot was most efficiently managed. Outside Gloucester I changed belts three times before I got the right gear, and then we made a very fast journey to Bristol. Davies knew the road through Bristol, and after innumerable twistings and turnings at length reached Bedminster Bridge. Further on the long hill proved too much for our high gear, the roads being very heavy and greasy. Just at this point Davies found a 2in. nail through his back cover, and we hurried away out of earshot. Within five miles he had caught us up, having effected a marvellous repair within five minutes. For the next few miles we found the hills particularly trying. The surface was greasy and heavy, and much 'light' pedal assistance was required, whilst on one or two occasions my passenger had to go through his celebrated acrobatic performances to enable me to take the sidecar up solus. We reached Exeter safely at 12.35—in my opinion the most strenuous section of the whole ride. Thunderstorm, rain, and severe gradients had made this section a very trying one.

The Record Safe Barring Mishaps.

"We had a long stop at Exeter (fifty minutes), for we had tons of time to spare, and felt that the record was safe, barring a serious breakdown. In view of the long and severe climb from Exeter to Okehampton, I decided to change the valves. The carburetter was also cleaned, and a new back cover fitted for safety's sake. We meant to leave nothing to chance. Our gear was 6 to 1. Two friendly motor cyclists, one of whom, Mr. Saunders, came right through to Land's End, caused us some amusement. They confessed that they had come to see the fun on the hills, and as we disposed of one pimple after another their astonishment knew no bounds. First they concluded that we had a secret two-speed gear concealed somewhere up my arm (by the way, my wrist and arm did feel like an operating rod); then after this theory had been exploded they wanted to know 'what the engine really is.' Hart-Davies had been tantalising me all the way by just keeping in view. Over Bodmin Moor we could see nothing beyond twenty yards on account of the mist, yet we climbed Bodmin without pedalling, Mr. Saunders hanging on to our back wheel to see how it was done. At Bodmin Davies was waiting with petrol can in hand, and we were soon on our last stage of the long ride. After Redruth the roads were appalling, and I had a nightmare, thinking that either the sidecar axle or frame would break. We soared up the few hills between Hayle and Penzance, and reached Penzance just at six o'clock. I had become possessed of the idea that I had to finish at 6.30. Why, I do not know, and when we found the road up, the surface atrocious and heavy with rain, I swore inwardly; the climax was reached when I stuck on the steep hill out of Penzance owing to the belt slipping. The last four miles were comparatively good going, and letting it all out the wonderful little engine pulled like a demon up to the last yard of the 886 miles. My first hand shake was for my partner, Wray, who had shared in my triumph.

"To all who helped me on this memorable ride, I wish to say the arrangements throughout could not have been better, and I tender my sincere thanks."

Interesting Data.

Specification of the machine: 3½ h.p., 1910 pattern, 85 by 88 mm. Triumph, Mills-Fulford sidecar, Shamrock-Excelsior tyres, S.G. belt, Bosch magneto and plug, Lucas lamp, Shell spirit, Price's oil. Driver's weight, 9½ stones; passenger, 8½ stones. Machine loaded, 200 lbs.; sidecar loaded, 100 lbs.

Some of the survivors of the Scottish Six Days' Trials with officials in the background.

HERTFORDSHIRE COUNTY A.C.

HILLCLIMB, JUNE 11th.

Class A.

DOUGLAS

FIRST AGAIN

Proving its right to the title of the

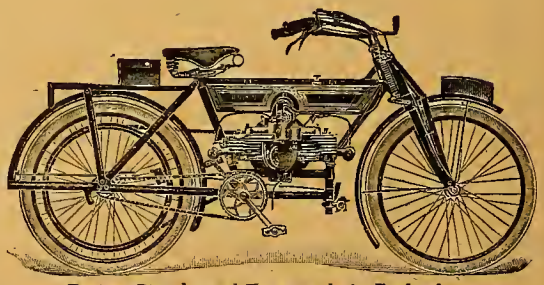
"KING OF LIGHTWEIGHTS."

London-Edinburgh Run.

6 GOLD MEDALS, 4 being Special Gold Medals for double journey.

London to Land's End and back.

5 GOLD MEDALS, 1 SILVER and Mr. Trotman's Cup for best lightweight performance.



Engine, Bicycle, and Tyres made in England.

DOUGLAS BROTHERS,

Kingswood, BRISTOL,

or London Office: 336, Goswell Road, E.C.

In answering this advertisement it is desirable to mention "The Motor Cycle."

Saturday's Team Trials for "The Motor Cycle" Cup.

A COMPLETE LIST OF THE ENTRIES.

THE list of entries for the Motor Cycling Club's annual team competition for *The Motor Cycle* fifty guinea challenge trophy, closed with a total of eighteen teams. By the kindness of Mr. J. Van Hooydonk we are enabled to give the names of the riders composing the teams and the machines they will ride. The competition starts from the outskirts of Daventry at 1 p.m. on Saturday next.

Anticipating a tie now that machines are so near perfect, and the difficulty of running off a tie, the M.C.C. Committee has decided to add to Rule 6: "The team scoring the highest mileage thus arrived at, and the times occupied over each twenty-five miles circuit by the riders of the team individually and collectively shall be the winner."

Rule 12 will be deleted. The above will enable the winning team to be determined on the day, and the best team will win.

BIRMINGHAM MOTOR CYCLE CLUB.

R. W. Duke (3½ Triumph)
S. K. Jones (3½ L.M.C.)
Reg. Samson (3½ Reg. Samson)
J. Slaughter (3½ Ariel)
F. H. Southam (3½ Triumph)
C. Winwood (5 Garrard tricar)

Reserves: J. Troman (3½ Triumph) and E. C. F. Evans (5 Rex and sidecar).

BRISTOL B. AND M.C.

E. Clark (2¾ Douglas)
W. W. Douglas (2¾ Douglas)
E. Kickham (2¾ Douglas)
F. C. Wasley (2¾ Douglas)
P. Grout (2¾ Douglas)
F. Bevan (5½ Rex and sidecar)

Reserves: P. Phillips (2¾ Douglas), G. B. Fry (3½ Rex), and E. Moon (4 N.S.U. and sidecar).

COVENTRY AND WARWICKSHIRE M.C. (2ND IN 1909).

W. Williamson (3½ Rex)
G. E. Roberts (3½ Rex)
J. Marshall (3½ Triumph)
G. E. Stanley (3½ Premier)
G. Smith (3½ Rex)
H. Williamson (5 Rex sidette)

Reserves: W. F. Newsome (3½ Triumph) and Sam Wright (3½ Humber).

DERBY AND DISTRICT M.C.C.

A. Ainsworth (5 Peugeot)
A. Mitham (3½ Rex)
F. G. Ford (3½ Triumph)
V. Clarke (3½ Bradbury)
W. Mendon (3½ Rex)
A. L. Boissier (3½ Triumph and sidecar)

Reserves: H. Baker (3½ Triumph) and W. McEwan (3½ Rex).

GREAT YARMOUTH AND DISTRICT M.C.C.

A. Wyatt (3½ Ariel)
F. C. North (3½ Ariel)
S. G. Allen (3½ Triumph)
H. Lock (3½ Triumph)
R. O. Clark (2¼ F.N.)
H. Collins (5-6 Roc and sidecar)

Reserves: C. Duberley (3½ Ariel). Dr. V. H. Blake (2¾ Anglian), and F. Worts (4½ F.N. and sidecar)

HERTS COUNTY A.C. (MOTOR CYCLE SECTION).

C. C. Cooke (3½ Triumph)
E. A. Colliver (3½ Triumph)
A. H. Colliver (3½ Triumph)
J. S. Harwood (2½ P. and M.)
F. Mussell (3½ Rex)
W. Pratt (3½ P. and M. and sidecar)

Reserves: Mrs. C. C. Cooke (3½ Triumph) and E. C. Jarvis (3½ Triumph).

ISLINGTON CONSERVATIVE AND UNIONIST M.C.

W. Price (3½ Rex)
H. E. Davison (3½ Rex)
C. Wilson (3½ Rex)
F. Brown (3½ Rex)
T. Campbell (3½ Rex)
W. Woodward (5 Rex de Luxe and sidecar)

Reserves: C. H. Price (3½ Rex) and H. Halfpenny (mount not known).

LEICESTER AND DISTRICT M.C.C.

Dr. C. B. Moss-Blundell (3½ Triumph)
E. G. Fowler (5 Indian)
T. Nedham (4 Clyde)
S. Briggs (3½ Triumph)
F. C. Barker (Clyde)
J. Finlay (3½ P. and M. and sidecar)

Reserves: W. Carrington (3½ P. and M.) and E. Laurance (3½ Bradbury).

MANCHESTER M.C.

H. L. Cunliffe (3½ Rex)
W. T. Munro (3½ Rex)
H. Reed (3½ Dot)
F. Sirette (3½ N.S.U.)
A. J. Moorhouse (5 Indian)
J. P. Scott (3½ Rex and sidecar)

Reserves: H. J. Scale (3½ Scale-J.A.P.) and J. E. Tytler (5 Dot and sidecar).

THE M.C.C. (HOLDERS OF THE CUP).

R. M. Brice (3½ Brown)
L. A. Baddeley (3½ Yelledab)
R. C. Davis (4 Griffon)
S. G. Frost (4 Minerva)
E. Pond (5 Vindec)
W. Chater Lea (5 C.L. and sidecar)

Reserves: H. G. Bell (2¾ F.N.) and W. H. Wells (5 Indian and sidecar).

NORTHAMPTONSHIRE M.C.C.

W. Duke (1910 Triumph)
A. E. Catt (1910 Triumph)
W. Barratt (1910 Rex and sidecar)
Chas. Jolley (1906 Triumph)
A. Osborne (1908 Triumph)
Wm. Lees (1910 Triumph)

Reserves: C. H. Leadbeater (1909 Triumph) and S. E. Temple (1909 Triumph).

NORWICH AND DISTRICT M.C.C.

A. A. Everard (3½ Triumph)
A. W. Lincoln (3½ Nondescript)
C. Cleary (3½ Bradbury)
H. Brown (3½ Triumph)
H. Chapman (3½ Triumph)
J. Boddy and H. E. Duge (5-6 Bat and sidecar)

Reserves: A. Bagshaw (3½ T.T. Triumph) and S. Hatch (3 Triumph).

NORTH-WEST LONDON M.C.C.

H. J. Pooley (Premier)
E. G. Westacott (Triumph)
W. Cooper (Bradbury)
A. C. Robbins (Humber)
H. G. Cove (Matchless)
E. W. Ashworth (V.S. and sidecar)

Reserves: G. Rowden (Bat) and G. H. Hollis (Triumph).

NOTTINGHAM AND DISTRICT M.C.C.

John King (F.N.)
Wm. Reilly (3½ Triumph)
C. R. Smith (3½ C.C.R.-Smith)
F. Burley Johnson (5-6 Matchless)
J. Richards (3½ Brough)
Geo. Brough (5-6 Brough and sidecar)

Reserves: J. Dutton Mitchell (3½ Triumph) and Chas. H. Sewell (3½ Triumph).

OXFORD M.C.C. (3RD IN 1909).

John Aldworth (3½ Kerry-Ahingdon)
R. A. Bishop (3½ Bradbury and sidecar)
H. G. Hill (3½ Bradbury)
W. A. Mathews (3½ Triumph)
J. F. Salter (3½ Triumph)

Reserves: A. H. Pearson (3½ Triumph) and G. F. Cooper (5 Vindec or Douglas).

SHEFFIELD AND HALLAMSHIRE M.C.C.

T. Durant (3½ Durant-J.A.P.)
F. Dover (3½ Triumph)
J. Haslam (2¾ Douglas)
S. Sawer (3½ Premier)
W. Hill (3½ Triumph)
A. Tarr (5½ Rex and sidecar)

Reserves: J. Stacey (3½ Triumph) and A. T. Smith (5½ Rex and sidecar).

SUTTON COLDFIELD A.C.

P. Mosedale (3½ Centaur)
H. C. Newman (3½ Ivy)
Howard Smith (3½ Triumph)
S. C. Perryman (3½ Ariel)
James St. John (3½ Centaur)
W. Mist (5 Mist and sidecar)

Reserves: F. P. Mayell (3½ Triumph) and Seymour Smith (5 Norton).

ESSEX MOTOR CLUB.

A. P. Howard (3½ Triumph)
H. Horswill (3½ Triumph)
G. Peppercorn (3½ Triumph)
L. W. Bellinger (5 Indian)
B. A. Hill (3½ Kerry Ahingdon)
W. Garrod (5 V.S. and sidecar)

Reserves: S. Sweet (3½ Triumph) and F. E. Smith (3½ Triumph).

We hear on going to press that last year's course will be used.

CLUB NEWS.

Leicester and District M.C.C.

The club held a very enjoyable speed-judging competition on the 9th inst., on the road from Oadby to Market Harborough. Seventeen members competed. W. Carrington on a Phelon and Moore was nearest his time, G. H. Upton being second.

Harrogate and District M.C.C.

The above club held a flexibility hill-climb on Thursday evening, June 9th. The following is the result:

	Entrant and Machine.	Difference.
1.	J. E. Brooke (3½ h.p. Triumph)	108⅕s.
2.	F. Strafford (3½ h.p. Triumph)	102⅖s.
3.	T. C. Atkinson (3½ h.p. T.T. Triumph)...	81⅖s.

Leeds M.C.C.

In connection with the annual Leeds to London and back reliability trial, which takes place next week end, and for which numerous entries have been received (including last year's winner, T. G. Bullus), a passenger machine class has been formed, with a special prize of a gold medal if machine is otherwise unplaced.

Bolton and District M.C.C.

The postponed hill-climb at Rivington resulted as follows:

	Touring Class.	M. S.	A.C.U. formula.
1.	Stanley Groom (3½ h.p. J.A.P.) ...	1 21⅘	... .0180
2.	J. H. Green (3½ h.p. Pecision) ...	1 21⅗	... .0166
3.	J. Fishwick (3½ h.p. Triumph) ...	1 20⅖	... .0158
	Racing Class.		M. S.
1.	F. W. Sixsmith (3½ Triumph T.T.) ...		50
2.	J. Fishwick (3½ h.p. Triumph T.T.) ...		1 6⅘
3.	L. R. Hardman (3½ h.p. Triumph T.T.) ...		1 19⅘

Sheffield and Hallamshire M.C.C.

A flying kilometre competition was held on the 11th inst. on a private road near Castleton, Derbyshire. The fastest time of the day was made by D. Bradbury on his 3½ h.p. Norton. Results:

Class I.—Capacity up to 350 c.c.

		Time Taken.
1.	P. Allen (2¾ h.p. Douglas)	59⅕s.
2.	J. L. Hall (2¼ h.p. Royal Enfield) ...	62⅕s.
3.	H. Dakin (2¾ h.p. Douglas)	60⅕s.

Class II.—Engines up to 500 c.c.

		Time Taken.
1.	D. Bradbury (3½ h.p. Norton)	41s.
2.	T. Durant (3½ h.p. J.A.P.)	45⅕s.
3.	B. Shaw (3½ h.p. Norton)	47⅖s.

Class III.—Engines of any capacity.

		Time Taken
1.	D. Bradbury (3½ h.p. Norton)	41⅗s.
2.	T. Durant (3½ h.p. J.A.P.)	44⅗s.
3.	J. Ardern (3½ h.p. Bradbury)	49s.

Nottingham and District M.C.C.

At the Notts A.C. Clipstone speed trials last Saturday, a mile handicap motor cycle race was included. Twelve competed. The final resulted in a win for A. E. Lole (5-6 h.p. F.N.); 2nd, W. H. Hadfield (3½ h.p. Triumph). F. Percy Johnson (7 h.p. Matchless) made fastest time, 1 min. 6 secs.

Derby and District M.C.C.

The first hill-climbing contest in connection with the Derby and District M.C.C. took place on Saturday at Hazelwood. The preliminary heats left four men in the contest, and the first three positions, for which gold, silver, and bronze medals were awarded respectively, were secured by: (1) O. Parker (3½ h.p. Humber), (2) V. Jobson (3½ h.p. Bradbury), (3) V. Clarke (3½ h.p. Bradbury).

Westmorland M.C.C.

On Thursday last the above club held a hill-climb on Greyhound Hill, near Kendal. The course was 1 mile 90 yards, and the gradient averaged about 1 in 8. There were twenty-one competitors. Result:

		Time.	Formula.
1.	H. Harrison (Bradbury)	2m. 0s.	... 178
2.	K. Hutchinson (Bradbury) ...	2m. 19s.	... 184
3.	W. Westwood (Triumph)	2m. 6s.	... 185

Ayr and District M.C.

A petrol consumption test was decided on the 8th inst. over a give-and-take course of 22¼ miles, starting and finishing at the club's headquarters, Dalblair road. Results:

	Single-cylinder Class.	Petrol. ozs.	Fig. of merit.	m.p.g.
1.	J. Robertson (3½ Triumph, 1909)	21.5	39.02	160.4
2.	Q. Clark (3½ Rex, 1909) ...	24	34.95	147
3.	H. Andrew (3½ Triumph, 1910)	26.75	31.13	131
	Twin-cylinder Class.			
1.	E. Hall (5 Rex, 1907)	40	26.9	88
2.	A. Sommerville (5 Rex de Luxe, 1909)	48.5	22.96	73
3.	F. Ferguson (5 Peugeot) ...	53.25	17.12	66

Manchester M.C.

On Saturday last, on the usual hill on the borders of Yorkshire, near Woodhead, the above club held its first big hill-climb of 1910.

The result was an easy win for A. J. Moorhouse, on a 5 h.p. Indian, who climbed the hill in the record time of 2m. 25⅗s. The next nearest, C. Meanock (7 h.p. Dot), took 2m. 43⅕s., and P. Platt (Bradbury), 2m. 50⅕s. Results:

1. A. J. Moorhouse (5 h.p. Indian).
2. F. W. Sixsmith (3½ h.p. Triumph).
3. P. Platt (3½ h.p. Bradbury).
4. H. J. Scale (3½ h.p. Scale-J.A.P.).

Novices' prize, H. Gibson (3½ h.p. Bradbury).

North-west London M.C.C. Hill-climb last Saturday.

Competitors and officials at the starting point.

(See next page.)

Club News.—

Worcestershire M.C.C.

There was a very good attendance at the club's first all-day run to Warwick. Lunch was partaken of at the Crown Hotel, and the afternoon was spent in sight seeing. A speed-judging competition is being held to-day (Thursday).

Coventry and Warwickshire M.C.

The prize winners in the ten hours' run to North Wales have now been announced. The timing at the secret checking stations revealed the fact that E. A. Gorton (5 h.p. Rex) and G. H. Spicer (3½ h.p. Triumph) rode most consistently, and they have been declared joint winners.

Streatham and District M.C.C.

The above club's reliability trial was held on the 4th inst., over a four-lap course totalling seventy-six miles, starting from the club's headquarters at Godstone. The medal winners were as follows:

1. G. D. Nelson (4 h.p. J.A.P.), 108 marks.
2. J. Campwell (four-cylinder F.N.), 97 marks.
3. C. J. Feeny (3½ h.p. Triumph), 96 marks.

North-west London M.C.C.

The results of the Coventry and back reliability trial are as follows:

Winners of silver cups.—Messrs. E. W. Ashworth, H. C. Bean, E. W. Brighten, E. A. Colliver, W. Cooper, H. Hill, G. H. Hollis, H. J. Pooley, G. E. Purchase, A. C. Robbins, E. G. Westacott, C. Williams, and E. Gwynne.

Winners of silver medals.—Messrs. W. J. Doe, C. H. Crole-Rees, and G. B. Owen.

A hill-climbing competition was held on Saturday last at Lippett's Hill, near Potters Bar. Competitors were weighed in at Goff's Oak Railway Station, G.N.R. The single-cylinder class was won by W. Cooper (3½ h.p. 1910 Bradbury), who also accomplished fastest time of the day. H. G. Cove headed the list of twin-cylinder machines, riding a 6 h.p. Matchless-J.A.P.

South Devon M.C.C.

An inaugural meet took place recently at the "Rock," Yelverton, near Plymouth, and although the weather proved wet, many members continued the run to Two Bridges, where an excellent lunch was partaken at Mr. Trinnerman's, Two Bridges Hotel, followed by an enjoyable run across Dartmoor to Torquay. A hill-climb is to be held on Saturday. Motor cyclists desirous of joining should write the hon. sec., Mr. Reg. Birkett, 10, Bedford Terrace, Plymouth.

Redditch and District M.C.C.

The results of the slow race held on Wednesday, the 8th inst., on the Ridgeway, are as follows:

LIGHTWEIGHTS.

1.	J. Cocker (2¼ Enfield)	3m. 13s.
2	Frank Smith (2¼ Enfield)	3m. 8s.
3.	E. J. Webb (2½ Clément)	1m. 40s.

HEAVYWEIGHTS.

1.	G. W. Horton (3 Humber)	3m. 3s.
2.	J. Fisher (5 twin Rex)	2m. 38s.
3.	W. E. Smith (3 Humber)	1m. 50s.
4.	S. Sheppard (3 Quadrant)	1m. 0s.

The next competition is a speed-judging competition, on Wednesday, June 22nd. The course will be from the Neville Arms, along the Ridgeway, down Arrow Lane, up Kingley Hill, round Dunnington Corner, up Weethby Bank, and back to the Neville Arms. The rates of speed will be drawn for at the start, which is at six o'clock. Competitors will not be allowed to carry watches, nor speedometers, but must rely upon judgment only.

A Motor Cycle Club for Gateshead-on-Tyne.

A number of motor cyclists in Gateshead-on-Tyne are about to form a motor cycle club. Readers in the district who are interested in the question should communicate with Mr. W. Stephen, 100, Whitehall Road, Gateshead-on-Tyne.

Motor Cycle Union of Ireland (Dublin Centre).

On the 25th inst. a reliability trial to Dundalk and back has been arranged.

July 2nd is the date of the inter-centre cup contest between Dublin and Belfast for the Triumph Cup.

Eldorado Cycle and Motor Club.

Readers in the locality of City Road, E.C., should note that a motor cycle section is attached to the above club. The town headquarters are 28-30, East Road, City Road, E.C., and country headquarters, "King's Oak Hotel," High Beech.

Motor Cycling Club.

A petrol consumption trial is to be held on Saturday, June 25th, starting at 5 p.m. Meet at the hotel, "True Lovers' Knot," Northwood, between Pinner and Rickmansworth. There are three classes: (1) Single-cylinder bicycles, (2) multi-cylinder bicycles, (3) passenger machines and cars (but not trailers). The awards in each class are: First, gold medal; second, silver medal; third, bronze medal.

"Shell" motor spirit at the rate of 1 pint for 300 lbs. total weight, increasing to 1½ pints for 600 lbs. and to 2¼ pints for 1,200 lbs. in the passenger class, irrespective of size or type of engine, due allowance being made for all intermediate weights, will be supplied to the competitors.

Multi-cylinder machines in Class 2, over 150 lbs. in weight, will be allowed 30 per cent. extra spirit.

Entries must be sent to the trials hon. sec., F. J. Jenkins, 35, Loveday Road, Ealing, by the 20th inst.

Sunderland and District M.C.

The annual reliability trial for the Vaux Challenge Cup took place on Saturday last over a 120-mile course from Sunderland to Brough (Westmoreland) and back *viâ* Chester-le-Street, Framwellgate Moore, Neville's Cross, Spennymoor, South Church, West Auckland, Staindrop, Barnard Castle, and Bowes. Twenty competitors, riding machines of from 1¾ h.p. to 8 h.p., took part as follow: Messrs. I. Baty, L. Forster, S. Wilson, A. P. R. Robson, J. P. Robson, J. Adams, F. Holzapfel, F. Turvey, jun., W. M. Duguid, A. Clarke, H. Mason, H. F. Inkson, H. M. Wood, F. Rowntree, E. J. Tiffin, T. Jack, T. Wood, H. N. Hull, C. W. Hughes, and G. W. Raper.

The Vaux Cup was given by the president of the club (Major E. Vaux), and by his request the result of this competition will decide the ownership of the trophy. In addition, the Motor Cycling Board of the North-Eastern Automobile Association have presented a shield and three prizes for competitions of which each affiliated club was to arrange one, and for which all the members of the board are eligible. The above trial was the first of this year's competitions, and the marks obtained are to be taken into consideration in awarding the N.E.A.A. shield. The Vaux Trophy competition was restricted to members of the Sunderland Club, and the results, when worked out, will be published in these columns.

A few members of the Bolton and District M.C.C.

CURRENT CHAT

TIME TO LIGHT LAMPS

June 16	...(GREENWICH)	9.17 p.m.
,, 18	... ...	9.18 ,,
,, 20	... ...	9.18 ,,
,, 22	... ...	9.19 ,,

The A.C.U. End-to-end Trials.

The following additional entries have been received for the above trials, which commence on July 4th and terminate on July 9th: Humber, Ltd., two 3½ h.p. two-speed Humbers; C. J. Fox, one 8 h.p. Bat.

Open Hill-climb in Yorkshire.

Entries for the Bradford Motor Cycle Club's second annual open hill-climb on Saturday week must be in the hands of the hon. sec., Mr. Felix Scriven, Alma House, Bradford, by Monday morning next. The venue is Cockshoot Lane, near Skipton.

An Energetic Secretary.

A. J. Moorhouse, who was a competitor in the recent T.T. Race, is secretary of the Manchester Motor Club, and he managed to get the members of his club to subscribe between them the sum of £5 11s. to the T.T. Fund.

An Impudent Theft.

On the 7th inst., between 6.30 and 8 p.m., a 1910 pattern Triumph, No. 152,942, engine No. 9,009, was stolen from the premises of the Darlington Golf Club at High Coniscliffe, near Darlington. Information concerning it should be given to the police or to the owner, Alfred Harrison, 97, Stanhope Road, Darlington.

Motor Cyclists in the Army Manœuvres

The War Office has invited the motor cycle section of the Motor Union to furnish a contingent of motor cyclist members to do duty during the period of the forthcoming army manœuvres, which take place from September 18th to 24th. Railway fares for cyclists and their machines and cost of messing whilst in camp (or payment for food and lodging in the event of cyclists having to put up at hotels) will be defrayed by the War Office. In addition to this the motor cyclists are to receive an allowance of 6s. 6d. per day to cover cost of petrol and upkeep of machine, including damage, for every day the machine is in use. Motor cyclist members of the M.U. desiring to enter their names for service during the above-mentioned dates are requested to communicate with the secretary, Caxton House, Westminster, S.W., as early as possible.

SPECIAL FEATURES

THE SCOTTISH SIX DAYS' RELIABILITY TRIALS.

By our Special Correspondent.

THE MECHANICS OF RIDING ROUND A CORNER.

THE END-TO-END SIDECAR RECORD.

Saturday's Team Trial.

With eighteen teams of six riders, two reserves to each team, dozens of officials and clerks of the course, Daventry (Northants) will be alive with motor cyclists on Saturday. It is rumoured that last year's course will be used, and a really sporting one it is. Although either the Motor Cycling Club or the Coventry and Warwickshire M.C. has won the trophy ever since the trial was inaugurated, there is a general feeling that some outside club will capture the cup this year. In the event of a tie, an addition has been made to Rule 6 and the times occupied over each twenty-five miles circuit will be taken into consideration.

FUTURE EVENTS.

June 18—M.C.C. TEAM TRIAL FOR "THE MOTOR CYCLE" CHALLENGE CUP. Competing Teams: Motor Cycling Club (holders), Coventry and Warwickshire M.C., Bristol B. and M.C., Norwich and District M.C.C., Sutton Coldfield A.C., Birmingham M.C.C., Manchester M.C., Derby and District M.C.C., Great Yarmouth and District M.C.C., Herts. County A.C., Essex M.C., N.W. London M.C.C., Oxford M.C.C., Nottingham and District M.C.C., Sheffield and Hallamshire M.C., Leicester M.C.C., North Islington C. and U. M.C., and Northamptonshire M.C.C.
,, 18—Brooklands A.R.C. Meeting, 2 p.m.
,, 25—Bradford M.C.C. Open Hill-climb at Cockshoot Lane, Skipton, 2 p.m.
July 4-9—A.C.U. LAND'S END TO JOHN-O'-GROAT'S RELIABILITY TRIAL.
,, 13—Open Irish End-to-end Reliability Trial, promoted by the Ulster Centre.
,, 13 (Wed.) and 14 (Thurs.)—Brooklands A.R.C. Meeting, 2 p.m.
,, 23—A.C.U. Quarterly Trial, Uxbridge to Banbury and Back.

Donation to the Douglas Hospital.

We are advised by Mr. Alec S. Ross that a sum of £60 has been handed over to the Manx Highway Board for the Douglas Hospital. This amount has been subscribed by the motor cyclists visiting the Isle of Man for the Tourist Trophy Race; £54 8s. 6d. was collected by Mr. Ross, and £5 11s. 6d. by Mrs. Aston and others on the *King Orry*.

A Ten Miles Hill-climb.

An important hill-climb promoted by the Unione Sportiva Florentina was held at Pontassieve-Consuma (Italy) on the 29th ult., over a distance of 10 miles 440 yards. In Class A for engines not exceeding 250 c.c. Bartolini (1½ h.p. Motosacoche) was first in 20m. 13⅕s. Class B for engines up to 333⅓ c.c. (one-third litre) was won by Squilla (2 h.p. Buchet) in 21m. 35s. Class C for engines not exceeding 500 c.c. was won by Borgo (3½ h.p. Borgo) in 16m. 3s.

Manchester M.C. Hill-climb on the borders of Yorkshire, near Woodhead. A. J. Moorhouse (5 hp. Indian) who made fastest time and won the Palmer Cup.

Next Year's T.T. Race Regulations.

Last week we suggested a separate event for twin-cylinder machines in the next Tourist Trophy Race. Mr. Archibald Sharp suggests three events, one for twins up to 750 c.c., one for singles up to 500 c.c., and one for lightweights, say 350 or 400 c.c.

Imports of Motor Cycles and Parts.

Though the May imports of foreign motor cycles and parts show a slight advance, the value of British exports exceeded the imports by £1,000. The import figures for May compared with previous years were:

	1908.	1909.	1910.
	£	£	£
Motor cycles ...	3,776	5,948	4,916
Parts thereof...	2,724	2,315	3,581
Total ...	£6,500	£8,263	£8,497

The imports for the five complete months of this year show a great increase over the corresponding period of 1909 and 1908. The figures were:

	1908.	1909.	1910.
	£	£	£
Motor cycles ...	21,136	18,211	20,585
Parts thereof...	8,647	9,785	23,729
Total ...	£29,783	£27,996	£44,314

British Exports.

The value of our exports of motor cycles during May, culled from Board of Trade returns.

	1908.	1909.	1910.
	£	£	£
Motor cycles ...	2,396	3,054	7,138
Parts thereof...	1,463	2,947	2,357
Total ...	£3,859	£6,001	£9,495

The rapid increase in British exports will be realised from the figures below for the five months ended May 31st:

	1908.	1909.	1910.
	£	£	£
Motor cycles ...	11,410	16,521	36,160
Parts thereof...	10,236	14,264	15,437
Total ...	£21,646	£30,785	£51,597

Cubical Capacity Tables.

Some time ago we issued a table giving the cubical capacities of all motor cycle engines. The first issue has been entirely absorbed, and owing to renewed applications for copies we have reprinted a number, and these can be obtained from our Coventry offices at 6d. per copy, post free.

Police Traps.

Readers are warned of a police trap on the Kew Road, between Kew Bridge and Richmond (Surrey), consisting of a measured furlong, worked by two policemen in plain clothes (one of them in a straw hat), and another policeman in uniform who stops motorists on receiving a signal from his *confrères*.

The London-Edinburgh Run.

In last week's issue we were asked to state that the 3½ h.p. Brough on which Mr. George Brough won the Motor Cycling Club Challenge Cup in the London-Edinburgh and back run was fitted with a Simms magneto. We have since been advised that this is incorrect, as the machine was fitted with a Bosch magneto supplied by the Bosch Magneto Co., 40-42, Newman Street, Oxford Street, W.

Motor Cycle Insurance.

"LD 1889" writes that he has been studying the special motor cycle prespectuses of insurance companies, and has come to the conclusion that the persons responsible for the prospectus knew nothing about motor cycles. In the opinion of certain companies, converting a motor bicycle into a three-wheeler by the addition of a sidecar or forecar increases its liability to be stolen by fifty per cent.; also the risk of machine being damaged by fire or explosion is increased fifty per cent. Finally, he points out that to insure against accidental death, sustained in direct connection with the insured motor cycle for £250, a premium of £1 10s. is demanded, but this he contends is altogether absurd, as he has an insurance policy for £250 covering *any* accident at an annual premium of 18s. 9d. This sounds too good to be true, and we should advise "LD 1889" to make certain that his policy really does cover *any* accident. Personally, we doubt it.

A Regrettable Accident.

We learn with regret that F. W. Barnes, of Zenith Motors, Ltd., has had a bad fall at Brooklands. Whilst testing a new machine fitted with an 8 h.p. twin J.A.P. engine and Gradua gear, specially built for a Cambridge motor cyclist, the valve blew out of the front tyre, rendering the machine unmanageable at speed. Barnes was badly cut on the head, hands, and knee, and will be incapacitated for some weeks. Though seriously knocked about, his principal grievance was that he would not be able to compete on Saturday in the Herts County hill-climb, which he had every hope of winning. It will be remembered that Mr. Barnes won two first prizes in this event last year.

Inter-club Meet in the South.

Cyril J. Feeny, hon. secretary of the Surrey Motor Cycle Club, writes: "Adverting to 'R.S.H.'s' letter [No. 4800] in your issue of June 9th, I beg to say that this club would be very glad to take part in an inter-club meet of the character to which your correspondent refers. The question of arranging such a fixture has already been raised in committee of this club, and the project has been provisionally approved. The success of a meeting of this nature depends very largely upon the convenience of the venue selected, and I would suggest that the centre of gravity of the southern clubs will be found here in Guildford. This town is within an easy day's return journey of practically any part of the South of England. I shall be very happy to hear further from your correspondent, and to join in arranging some of the details of the proposed meet."

Oxford M.C.C. impromptu hill-climbing competition on Irondown Hill, near Deddington (Oxfordshire). (1) R. A. Bishop (5 h.p. Indian) who made the fastest ascent and won the sweepstake, leading the hon. sec., W. A. Matthews (3½ h.p. Triumph). (2) E. Parker (8 h.p. Matchless) and H. G. Hill (2¾ h.p. Bradbury) competing in one of the heats.

AUTO CYCLE UNION NOTES.

The Lewes M.C.C. recently affiliated to the governing body.

Tourist Trophy Race.

At a recent committee meeting all the awards were confirmed, and votes of thanks were passed to His Excellency Lord Raglan, Lieutenant-Governor of the Isle of Man, the Highway Board, Colonel Freeth (Chief Constable), and the officials whose valuable assistance rendered the race the success it was.

It has been allotted to the Competitions Sub-committee to consider the conditions of the 1911 Tourist Trophy Race.

Permits.

In consequence of the agreement between the A.C.U. and the N.C.U., it was decided only to grant permits to motor cycle races and events in which the pedal cycle races were held under N.C.U. rules. Permits were granted for the following events: Bradford M.C.C. Open Hill-climb, June 25th, and the New Chesterton Sports for a motor cycle race to be held on July 7th. Also for a motor cycle race to be held during the Harrow Sports on June 25th, provided the pedal cycle races are ridden under N.C.U. rules.

A permit was granted to the B.M.C.R.C. to hold at Brooklands a sixty-lap track race for touring motor bicycles which conform to the A.C.U. definition of a touring machine on Wednesday, June 22nd, starting at 4 p.m.

Judges for the Six Days' Trials.

Messrs. A. G. Reynolds and H. G. Cove have been appointed judges for the Six Days' Trials, July 4th to 9th, and will follow these trials from Land's End to John-o'-Groat's.

Marshals and Checkers for the Six Days' Trials.

It will naturally be understood that the organisation of so big an affair as the Land's End to John-o'-Groat's Trials will require a good deal of outside assistance. The secretary, Mr. F. Straight, 18, Down Street, Piccadilly, W., will therefore be anxious to hear from riders who could officiate as marshals or checkers at the following points: Land's End, Camborne, Highbridge, Cross, Axbridge, Miner's Arms Inn, Whitchurch, Gloucester, Gretna Green, Kirkpatrick, Ecclefechan, Beattock Bridge, Abington, Douglas Mill, Newmains, Denny, Thornhill, Pitlochry, Dalnaspidal, Laggan Bridge, Loch Laggan Hotel, Spean Bridge, Invergarrie, Fort Augustus, Invermoriston, Drumnadrochit, Invercannich, Struy Bridge, Inverness, Beauly, Conan, Evanton, Alness, Invergordon, Tain, Clashmore, Dornoch, The Mound, Helmsdale, Thrumster, and Keiss. Riders who offer their services at the above points will not only be assisting the motor cycle movement, but will also obtain a magnificent view of the competition.

A COSMOPOLITAN GATHERING.

In last week's "Chat" we referred to a run organised by motor cyclists resident in St. Petersburg. The riders depicted above are those who took part. It may be added that the military looking uniform denotes that the wearers are students, and is not, as one might think, the regulation costume for motor cyclists in Russia. The riders in the group are of English, French, German, and Russian nationality.

BROOKLANDS AUTOMOBILE RACING CLUB.

The following entries have been received for the motor cycle races at the B.A.R.C. June meeting next Saturday:

2.20 p.m.—THE JUNE HANDICAP.

Entrant.	Machine.	Bore and stroke.	c.c.
V. O. Beuttler (Bat)	... ...	85 × 85 ...	964
D. R. Clarke (Indian)	... ...	71½ × 82½ ...	662
G. Lee Evans (Indian)	... ...	82½ × 93 ...	994
A. V. Deacock (Wanderer)	...	74 × 77½ ...	666
F. W. Dayrell (Martin-J.A.P.)	...	85 × 85 ...	964
H. G. Partridge (N.S.U.)	...	75 × 90 ...	808
H. V. Colver (Matchless)	...	85½ × 58 ...	666
C. R. Collier (Matchless)	...	85½ × 85 ...	976
H. A. Collier (Matchless)	...	85½ × 58 ...	666
G. Schink (N.S.U.)	... ...	80 × 99 ...	995
G. Schink (N.S.U.)	... ...	80 × 99 ...	995
J. P. Le Grand (Rex)	... ...	77½ × 70 ...	670
F. A. Applebee (Rex)	... ...	77½ × 70 ...	670
W. Lamm (V.S.)	... ...	75 × 75 ...	662
D. F. Steeves (N.S.U.)			

All the above are twin-cylinders.

4.20 p.m.—THE SUMMER HANDICAP.

Entrant.	Machine.	Bore and stroke.	c.c.
F. W. Applebee (Centaur)	...	85 × 87 ...	493
A. Brunton (New Century)	...	76 × 76 ...	349
E. D. Colrak-Hearne (Triumph)	...	85 × 88 ...	499
W. Dewar (Triumph)	... ...	85 × 88 ...	499
H. Hunter (Triumph)	... ...	85 × 88 ...	499
G. F. Hunter (Triumph)	... ...	85 × 88 ...	499
Capt. Sir R. K. Arbuthnot, Bart., R.N. (Triumph)	...	84 × 86 ...	477
H. Shanks, jun. (Kingfisher)	...	85 × 60 ...	340
*D. R. Clarke (Indian)	... ...	71½ × 82½ ...	662
*G. Lee Evans (Indian)	... ...	70 × 83 ...	639
A. C. Maitland (Trump-J.A.P.)		85½ × 85 ...	488
*T. Wilberforce (Indian)	...	70 × 83 ...	639
John Gibson (Trump-J.A.P.)	...	85½ × 85 ...	488
W. A. Jacobs (Rex)	... ...	84½ × 89 ...	499
*H. V. Colver (Matchless)	...	85½ × 58 ...	666
*C. R. Collier (Matchless)	...	85½ × 58 ...	666
*G. Schink (N.S.U.)	... ...	52 × 74 ...	314
*G. Schink (N.S.U.)	... ...	75 × 75 ...	663
A. Webb (Minerva)	... ...	76 × 76 ...	349
R. T. Exshaw (N.L.G.)	... ...	85 × 85 ...	482
C. E. Peach (Minerva)	... ...	76 × 76 ...	349
*J. P. Le Grand (Rex)	... ...	77½ × 70 ...	670
O. C. Godfrey (Rex)	... ...	83 × 89 ...	481
*F. A. Applebee (Rex)	... ...	77½ × 70 ...	670
A. G. Tapley (Calthorpe)	...	85 × 86 ...	488
*W. Lamm (V.S.)	... ...	75 × 75 ...	663
F. A. McNab (Trump-J.A.P.)			
E. Williams (Frays)	... ...	85 × 85 ...	482
V. Yates (Rex)	... ...	84½ × 89 ...	499

*Denotes twin-cylinders.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

Chain or Belt.

(1.) Would you prefer chain or belt drive on an 8 h.p. J.A.P. engine for touring purposes? Does a chain drive run as smoothly as a belt? Does it require more looking after? Why is the belt more popular than the chain? (2.) What should be the average life of a steel-studded 2½in. tyre on an 8 h.p. machine?—C. T.

(1.) If the machine is to be used for passenger work use a chain, if for single work use a belt. Chain drive with a proper slipping device is almost as smooth as a belt. A rubber belt is cleaner, easily repaired or replaced in case of breakage, and unlikely to do damage should the engine seize or jam. (2.) The average life of a 2½in. tyre on an 8 h.p. would be about 2,000 miles.

Knocking or Labouring of Engine.

What exactly is meant by the term "knocking"? I have ridden a Triumph machine for six months, and have noticed a metallic clank, which sounds as if it might be caused by a slack bearing of the connecting rod, but as this noise is noticeable at all times, and especially when going down an incline, when the engine misfires every alternate firing stroke, I do not attempt to check it by retarding the spark. Am I wrong? When the engine slows down on a steep upgrade and labours just before stopping there is a loud screech accompanied by a pounding noise at each firing stroke, which stops immediately the spark is retarded. This I suppose is the "knock" which one is warned against, and which does harm, but does the other knock do any injury, and is the misfiring I have spoken about a bad thing for the engine?—J. C. K.

Knocking is caused by the explosion taking place too early; that is to say, before the piston has reached the top of the compression stroke. The piston therefore ascends against the full force of the explosion, which tends to drive it downward, and this naturally causes the knocking noise. The sound you get when running down hill is probably simply the click of the valves, as it is unlikely that in six months the connecting rod bearing would be so worn as to cause the noise. The only way to verify this would be to take the engine down. In descending hills it is advisable to raise the exhaust valve and coast down. The noise you get on hills is genuine knocking, which should not be allowed to continue longer than can possibly be helped.

Size and Weight of Flywheels.

In the case of an engine with, say, 15in. diameter flywheels, would better results be obtained by using an engine pulley of 3in. or one of 5in. diameter, assuming the gear ratio to be unaltered, and the weight of the two pulleys to be equal? Of course, there is no question as to the relative gripping powers of large and small pulleys.—R. O.

It all depends on the weight and design of the flywheels. If they are accurately designed to suit the engine there would be no gain in fitting an extra large engine pulley which would act in the same way as increasing the weight of the flywheels. If the flywheels are too light there would be a gain by using a large diameter engine pulley, but not otherwise. There is a critical diameter and weight of flywheels according to the bore and stroke and speed of the engine, beyond which no increase of weight or diameter is effective.

Various Queries of Interest.

(1.) I have a 3½ h.p. Peugeot, a.o.i.v., Brown and Barlow carburetter. I find that when the engine is running a very distinct spray appears to come from the carburetter. What is the cause of this, and does it take any power from the engine? The carburetter is about 1½in. away from engine. (2.) Do you recommend driving on magneto switch or on throttle for city work? Does raising exhaust lift to slow in traffic help to pit valves? (3.) How often would you oil this engine?—N. P. W.

(1.) It means (1) that the spray is slightly on the large side, (2) that the inlet valve is opening to an excessive amount, or (3) the valve spring is rather weak. (2.) As regards driving, it would be better to control on the throttle, when possible, or exhaust lifter. For slow speeds, if you drive with the exhaust valve partially lifted it certainly helps to pit the valves. (3.) As regards lubrication, we should recommend you to give a pumpful of oil every twelve miles, or half a pumpful every six miles.

Refusal to Answer to Throttle Lever.

Please say the probable cause of my 1¾ h.p. Motosacoche motor bicycle having taken to run at one speed (a racing speed) only. Previously it was very sensitive, and answered to the least movement of the levers, but I cannot now get it to run slowly at all.—CA 421.

Without actually seeing the machine it is difficult to say what is the matter with it, but the symptoms point to the carburetter. You had better examine the working of the throttle and the wire controlling it, and see that the opening corresponds exactly with the position of the control lever. A hole or leakage admitting air to the induction pipe would account for the engine refusing to run slowly. Also overhaul the machine thoroughly and see that the magneto and carburetter are in order.

Fuel Consumption. Spring Footboards.

My machine is a 1908 standard tourist. (1.) I often see in *The Motor Cycle* particulars of fuel consumption tests with 3½ h.p. machines with a mileage of 100 and more miles per gallon. How is it done, and can I do likewise? 80-90 is about my average. (2.) Are spring footboard rests to be obtained anywhere which could be easily and comfortably fitted to my machine? A local man has tried to make a pair as an experiment, and has not succeeded very well. With a Brooks saddle seat and Hartford grips I have got rid of a lot of vibration.—B. W.

(1.) As regards economy, machines vary to a very large extent. Apart from a well-tuned engine, economy in running depends upon two things—(1) the adjustment of the carburetter, (2) the method of driving, and also upon the amount of air used. If you use a very small jet the consumption will be reduced at the expense probably of the power. If you use a very small jet a device to cut off the main air would be necessary. The most economical way of driving is to advance the spark as far as the road and other conditions will allow, and drive with as attenuated a mixture and as little of it as possible, to average about fifteen or twenty miles an hour, and to coast down hill as much as possible. This, however, is not the

way one would drive under ordinary circumstances. Your consumption at the present time is about what it should be. (2.) We do not know of any spring foot-boards on the market at the present time. Spring foot-rests, however, which are more or less similar to what you require, are made by Messrs. Templeton Bros., Sauchiehall Street, Glasgow, and by Messrs. J. Bradbury, Braintree, Essex.

A Double-purpose Accumulator.

Q. I should be obliged if you would answer the following: I use a 4-volt electric lamp for short runs, when it is not worth while to light up my acetylene lamp. I have two accumulators—one for the lamp and the other for ignition. Could I use one of these for both purposes at the same time, whilst the other is being recharged? Or would the current required for the lamp interfere with proper ignition, or, on the other hand, that used for ignition cause unsteady lighting of the lamp?—C. G.

It would not be advisable to use the accumulator for lighting and ignition at the same tme, as this would take a great deal out of the accumulator. It might, however, be done in cases of emergency for very short runs.

Licence for Motor Bicycle and Coupler.

Q. Will you kindly inform me whether it is necessary to take out an additional licence if I attach a Unito Coupler and an ordinary push bicycle to my motor cycle? The makers say no extra licence is necessary, but I should be glad if you would give me your opinion, as I am somewhat doubtful on the point. If you consider a licence is necessary for the coupler, can you advise (in view of the Budget regulations) where to take it out?—G. H. H.

The Board of Inland Revenue has decided that an extra licence is necessary, the conversion causing the machine to be a four-wheeler subject to a tax of £2 2s. In some districts it is possible to get off with an additional 15s. licence, the push bicycle being treated as a trailer. We should advise you to take out a 15s. licence for the coupler, and in making application for it treat it as a trailer. It will make no difference where it is taken out.

Synchronising Firing. Reducing Consumption.

Q. (1.) I have a 5 h.p. twin-cylinder Rex, which will only fire on one cylinder when starting, but the other fires when machine has got up speed. Could you please tell me how to cure this? (2.) My machine uses a large amount of petrol. I am only able to do about forty miles or so to the gallon. Could you give me any reason for this? My machine is 1907 pattern, Longuemare carburetter, accumulator ignition.—REXITE.

(1.) Probably the inlet valves are not properly adjusted, and the spring in one cylinder is a good deal stronger than in the other. Or the adjustment of the contact-breaker or carburetter may be at fault. A rich mixture is required for starting. (2.) Restrict the opening of your inlet valves to $\frac{5}{32}$in., fit fairly strong springs, and see that both have an equal tension. This will reduce your consumption, prolong the life of your inlet valves, and cause the machine to pull regularly.

READERS' REPLIES.

Belt Jumping Off Pulleys.

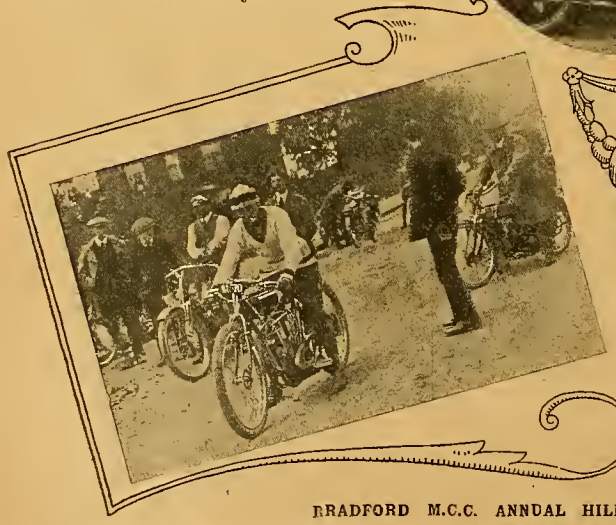
I cured a Watawata of jumping off proclivities by only leaving enough room, and no more, for the fastener hook to engage with its eye. When the whole, or a large portion of the slot in the eye is left outside end of belt, the hook disengages when running slowly, picking up, or starting on a high or even moderate gear. Each explosion causes a jerk of belt with consequent temporary stretch, the reaction causing hook to disengage from eye unless a neat and close fit.—OILE.

To Facilitate Starting.

I have had starting trouble with my 3½ h.p. Scott, and my experience might interest "Two Stroke" and possibly other Scott users. The cause of it was this: The airholes in the throttle casing admitted a good deal of air at all positions of throttle, and consequently when starting from cold the mixture was much too weak. Two strips of strong plaster over these holes stopped my trouble and improved the running of the engine when throttled down.—SHORT GRASS.

A Beginner's Mount.

Some time ago I asked your advice about a second-hand 2½ h.p. Kerry. I took the advice, and purchased the machine for £8 10s., and I would like to relate my experiences with it. In a little over three weeks I rode it 680 miles, and I am greatly pleased with it. I had practically no trouble with the machine, as when I bought it I overhauled and replaced any nuts or small parts that were shaky. My running expenses, including everything for the 680 miles, were 17s. 6d., which works out about a halfpenny a mile. The machine climbs splendidly, and will go up Brockley Hill without pedalling. I am only 15, and am writing this to tell those people who cannot afford an expensive mount that with a little care they will be able to derive a great deal of amusement and pleasure from a really cheap machine.—BK 169.



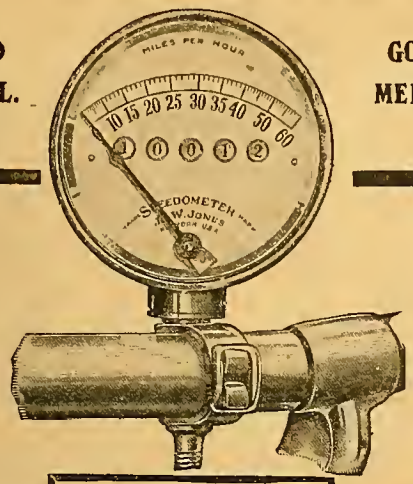
BRADFORD M.C.C. ANNUAL HILL-CLIMB FOR THE DYSON SHIELD.

(1) T. Bullus (3½ P. & M.), the winner. The club secretary, Felix Scriven, is in the centre of the group.

(2.) H. Shaw (7 h.p. Indian), who accomplished fastest time.

(3.) Some prominent competitors. From left to right: Bedford, Philipp, Bagshawe, Shaw, and J. Scriven.

GOLD MEDAL. GOLD MEDAL.



JONES

Your mount is incomplete without this unique Speed and Mileage Indicator.

MODELS:

26. Speed to 60 m.p.h., and Season's Mileage to 10,000 miles **£3 3 0**
31. Includes also trip mileage and automatic reset **£4 4 0**
32. Above with addition of maximum speed hand **£5 5 0**

FULL PARTICULARS OF

MARKT & CO. (LONDON), LTD.,
6, City Road, LONDON, E.C.

3in One

Known by all Cyclists, it should be known by all Motor Cyclists.

It's the best Lubricant for bearings and working joints obtainable anywhere in the whole wide world.

Non-heating and never gums or dries out.

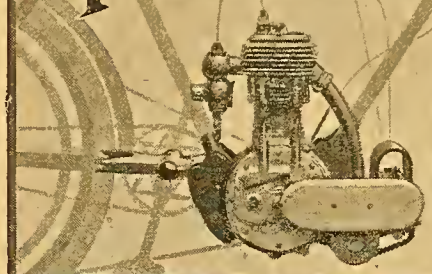
"I used 3-in-One on high-speed Electric Motors (running 2,800 revolutions a minute), and the bearings were not even warm." OSCAR T. D. BRANDT.

Electrician, U.S.S. Newport, Annapolis, Md., U.S.A.

Write for Sample Bottle.

3-IN-ONE OIL COMPANY,
Dept. O, 124, HOLBORN, LONDON, E.C.

"Precision"



THE PRECISION ENGINE.
A Complete Unit for Motor Cycles.

Every feature of the Precision Engine is founded on practice and justified by Experience. The one aim in its construction is to ensure ample power and perfect reliability. Every part is of the highest possible grade of material. The workmanship is in keeping.

The Precision Engine can be supplied separately or as a COMPLETE UNIT with Pulley, Magneto, Silencer, Carburetter, and Lugs, ready for building into the bicycle.

Write To-day for full particulars.

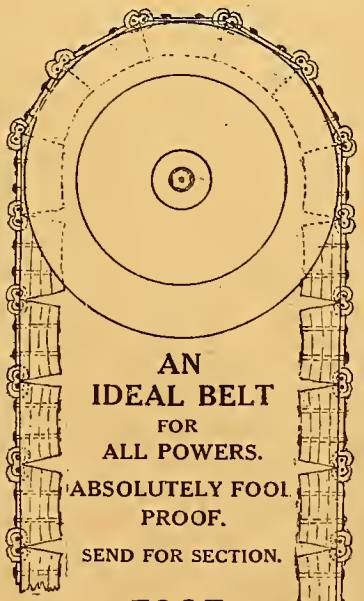
F.E. Baker, Ltd. 90 Moorsom St. Newtown Row. Birmingham.

Found at last—a Non-stretchable Chain Belt.

LEATHER or RUBBER.

FULLY PROTECTED.

Made in all sizes.



AN IDEAL BELT FOR ALL POWERS.

ABSOLUTELY FOOL PROOF.

SEND FOR SECTION.

FROM 2/- PER FOOT.

Write for booklet.

J. HASLAM,

9, Racton Road, Fulham, S.W.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Caroarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

WAUCHOPE'S

Points the way to successful dealings. . .

THE BEST

— FOR —

EXCHANGE

— IS —

WAUCHOPE

So—try him now. PROVE IT.

On view at 9, Shoe Lane, Fleet St., E.C.

Triumph, Rex, Excelsior, Bradbury, Indian, Moto-Reve, Motosacoche, Bat, Matchless, Humber, Roc, Douglas, A.S.L., F.N., V.S., N.S.U., etc.

OUR HAND

Please come and see us, as we can show you a grand selection of machines. . . .

We are glad to serve you honestly and very fairly at

WAUCHOPE'S,

THE MOTOR MAN,

9, Shoe Lane, E.C.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20 Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days, and if no sale is effected, each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmoreland.

1910 Triumphs ready for delivery; £48 18s., or with P. and M. two-speed £56.—Walker's.

1910 Phelon and Moores for early delivery.—Walkar's Cycle Works, Ferryhill, Durham.

MOTOSACOCHE, in thorough condition; £14; spring forks; a bargain.—Below.

WOLF, 1¾h.p., magneto, not run 100 miles, splendid machine; £20.—Mason, Burnfoot, Wigton, Cumberland.

HUMBER, 3½h.p., Roc two-speed gear, 1909 pattern, little used, good hill-climber; £30.—Can be seen and tried. Dean's Garage, Carnforth.

QUADRANT, 3½h.p., Roc two-speed gear, 1908 pattern, very low frame, spring forks, magneto; £25; trial by appointment.—Dean's Garage, Carnforth.

FOR 1910 Triumphs, Humbers, N.S.U.'s, and Enfield lightweights, we can give you deliveries from stock. Why wait? Send for lists.—Write, wire, or 'phone your wants to Turvey and Co., The Motor House, Sunderland.

SECTION II.

York and Lancashire.

DOUGLAS, King of Lightweights.—Gourlay, Fallowfield.

P. and M., 2¾h.p., 2-speed gear, good condition; trial; £12.—Jowett Motor Co., Bradford.

4h.p. J.A.P., late 1907, good condition; £16.—188, Pontefract Rd., Cudworth, Barnsley.

TRIUMPH, 1909; also Triumph free engine model; offers.—Hainsworth, Branch Rd., Batley.

1910 Triumph, Palmer cord tyres, accessories as supplied; £44.—Darling, Sunnyside, Keighley.

3½h.p. Bat, spring frame, recently overhauled and bushed; £13.—Hornby, 2, Clarendon St., Bradford.

TRIUMPHS, 1910, in stock; Humber, with Roc two-speed, new, £39, no dealers.—Lord, agent, Rochdale.

PHŒNIX, 1¾h.p., good condition; genuine bargain, £7, or nearest.—100, Monmouth St., Rusholme, Manchester.

1907 Triumph, in good condition, new carburetter fitted, 1910 B.B., handle-bar control; £25.—Forrest, Coppull.

BRADBURY, 3½h.p., new October last, unscratched, and guaranteed perfect; £30.—Stevens, 100, High St., Manchester.

BRADBURY, 3h.p., good reliable machine, latest B. and B. carburetter, h.b.c.; £12.—Smith, 40, Bentley Rd., Doncaster.

NEW 3½h.p. Premier, auxiliary exhaust, can be seen by appointment.—34, Cromwell Rd., South Bank, R.S.O., near Middlesbrough.

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

DOUGLAS, king of lightweights, latest models in stock; immediate delivery.—Norton, Ironmonger, uithford St., Coventry.

1h.p. Triumph, 1909, first-class condition, with 2 spares; £35.—Howard Smith, The Dingle, Four ks. Any trial by appoint ment.

1h.p. Star, Brown engine, Amac, C.A.V., Fuller Syn 2 tonic, complete, tools, accessories; £11, quick.— lvidge, 242, Stratford Rd., Birmingham.

1h.p. 1909 Premier, perfect condition only ridden 2 3,600, complete with tools, spares, etc.; 30 uineas.—Main, 36, Parade, Leamington.

1908 3½h.p. Peugeot, magneto, Traffault forks, new tyres, h.b. control, French grey, perfect order; ice £20.—Hollier, West St., Warwick.

RIEL, Ariel, Ariel.—A few 2½h.p. lightweights at clearance prices, accumulator ignition; write for rticulars.—Ariel Wks., Bournbrook, Birmingham.

PEUGEOT, 5-6h.p., dual ignition, handle-bar control, not done 600 miles yet; cost £60, accept £23.— raper's Shop, 64, Tilton Rd., Small Heath, Birmingham.

1h.p. Imperial Rover, absolutely reliable, Longue- 2 mare, two accumulators, lamp, separate generator, nd, carrier; 10 guineas, no offers.—28, Widdrington l., Coventry.

REX Twin, magneto, spring forks, Whittle belt, h.b. control, B. and B., with art cane sidecar, accessories; trial; £25, or offer.—Gadd, Inglewood, ngley, Birmingham.

1h.p. Whitley, handle-bar control, Longuemare car- 2 buretter, just been overhauled, 2¼in. tyres, od condition, perfect running order.—Shaw, 33, rthey Rd., Coventry.

1909 Twin Rex de luxe, two-speed, new November, not ridden 500, tyres perfect, Continental front, nlop Special back, accessories and tools; £37 10s.— orn, 30, West St., Leicester.

1910 Rex Tourist Model Speed King, engine, free engine and plate clutch, practically new, fitted up mplete, lamp, horn, spares, unscratched; £43.—Samp n, Knighton House, Queen's Rd., Coventry.

1h.p., Roc clutch, Bosch magneto, new Palmer cords 2 new Whittle belt, latest Brown and Barlow carretter, long and low; any trial; £15, or close offer— rite, or call, Robinson, 65, Mill St., Old Basford, Nottingham.

3h.p. Minerva-Excelsior, all in good order, low frame, 4 magneto, new, h.b.c. B.B., two brakes; owner ying Triumph; £11 11s.; a real good reliable machine, th all spares.—Box 4,957, *The Motor Cycle* Offices, oventry.

3½h.p. Rex, just overhauled at makers, new piston and rebushed, Clinchers, B and B., handle-bar controlled, complete with lamp, horn, tools, stand, and rrier, excellent condition; £15.—Main, 36, Parade, amington.

HUMBERS, Premiers, Ariels, and Royal Enfields latest models in stock; exchanges; several shopiled; Ariel, £38 10s.; Enfield, Palmer cords, £37 0s.; two-speed Humber, studded tyres, £45.—Evans, ent, Sparkhill, Birmingham.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

1910 Triumph motors in stock, both models.—Crawley, St. Mary's, Bedford.

1h.p. Quadrant, h.b.c., Bates tyres, etc.; £7, or ex- 2 change.—Fern House, Ampthill.

3h.p. Minerva, practically new, two accumulators, 4 stand, quantity spares; £13 10s.—Masters, Wilead, Bedford.

1h.p. Humber, with forecar attachment, free engine, 2 clutch, excellent condition; no reasonable offer fused, must sell.—Sharpe, Mildenhall.

TRIUMPH, 2½h.p. J.A.P. engine, thoroughly overhauled, new cylinder, tube, non-skid, h.b.c.; £12 Photographer, Great Staughton, St. Neots.

HUMBER Motor Cycle, 3½h.p., magneto, Roc two-speed, free engine, spring forks, only ridden few nes; absolute bargain, cost £51 10s.—75, Christchurch s, Ipswich.

TRIUMPH, 1908, perfect condition, tyres and belt as new, lamp; £28 10s., or exchange magneto ghtweight. Douglas or Motosacoche preferred; cash justment.—Wallis, c/o Bedwells, Newmarket.

1h.p. Triumph, late 1907, Amac 1910 carburetter, 2 cost £9 overhaul, plating, enamel, just as new, so belt and tyres, £28; 3½h.p. Brown, 26 by 2¼ tyres, ow condition, £11.—Riddelsdell, Hadleigh, Suffolk.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

1910 Douglas, practically unused; cost complete over £40, what offers?—Pratt, Hazeldene, Broms rove.

1909 3½h.p. Rex, in perfect running order and condition; £27 10s.—Walker, Homend St., Ledbury.

The Halifax Motor Exchange

Largest Rex Dealers.

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

IN STOCK FOR CASH OR EXCHANGE.

"Don't write." Bring your machine and cash and we will treat you liberally

1910 New 5 h.p. Twin INDIAN	£57
1910 New 3½ h.p. REX Speed King	£32
1910 New 5 h.p. REX Speed King	£35
1910 New 3½ h.p. Tourist REX	£43
1910 New 5 h.p. Tourist REX	£51
1910 New 3½ h.p. Tourist REX, plate clutch	£54
1910 New 5 h.p. Twin REX DE LUXE	£62

3½ h.p. Two-speed BROWN, chain drive, handle starting, 26in. wheels	£25 0
1909 Two-speed Twin REX DE LUXE	£30 0
1909 5 h.p. Twin REX, spring forks	£32 10
1908 Twin Tourist REX, magneto	£26 10
5½ h.p. REX DE LUXE, clutch, handle starting, spring forks Cantilever	£19 19
5½ h.p. Twin REX, spring forks	£16 10
1909 3½ h.p. Magneto REX	£29 10
1909 3½ h.p. REX Speed King, soiled	£32 10
1909 3½ h.p. Two-stroke REX TOURIST	£29 10
1909 3½ h.p. Two-stroke REX DE LUXE, Roc clutch, two speeds, as new	£33 10
3½ h.p. Magneto CLYDE, good condition	£14 10
1908 3½ Magneto MEX, spring forks	£24 10
1908 3½ h.p. N.S.U., magneto	£22 10
2¾ h.p. PHELON AND MOORE, two-speeds	£22 10
3 h.p. BROWN, spray, Watawata	£9 10
3½ h.p. ROVER, trembler coil, 26in. wheels	£13 10
3½ h.p. Magneto QUADRANT, spring forks	£24 0
3 h.p. SINGER, V belt, high tension magneto	£15 10
3½ h.p. BRADBURY, 26in. wheels, non-skid	£15 10
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. ROC, magneto, clutch	£19 19
3 h.p. HUMBER, spray, powerful	£10 0
3½ h.p. MINERVA, good condition, Palmers	£16 10
2¾ h.p. DE DION pattern, spray	£5 10
2¾ h.p. SINGER, trembler coil	£5 5
2¼ h.p. KELECOM, spray, excellent condition	£5 10
2¼ h.p. BRADBURY, h.b. control, good order	£3 10
1½ h.p. MINERVA, wants attention	£3 10

Monster List on application.

Cash Offers and Easy Payments considered.

One Brand New 3½ h.p. REX, just received from makers, and fitted with latest 1910 forks, magneto, carburetter and other 1910 fittings, tools, spares, and accessories £37 10

SUNDRIES.

New 1910 de Luxe Sidecar	£5 17 6
New 1910 Rigid Art Cane Sidecar	£4 17 6
New 8ft. x 1in. Shamrock Gloria Belts per ft.	1/6
New 8ft. and 8ft. 6in. x 1¼in. Shamrock Gloria Belts per ft.	1/4
New Art Cane Sidecar Body	19/6
Motor Cycle Tubes, all sizes	6/-
New 26 x 2in. Clincher Ar Tyres	22/-
New 26 x 2in., 28 x 2in., and 28 x 2¼in. Clipper-Reflex	17/6
New 26 x 2¼in. Clipper-Reflex Covers	20/-
New 28 x 2¼in. Clincher Ar Covers	21/-
1909 Rex Spring Forks, with springs	19/6
1908 Rex Spring Forks, with springs	16/6
1904 and 1905 Rex Forks	12/6
New 20-amp Fuller Accumulator	11/-
Forecar, with tyres, fit P and M, Rex, or Minerva	37/6
Lycett's Large Size, new	9/6
Tubular Carriers, to fit all makes	4/11
Rex Pattern Handle-bars, plated	6/6
Swan Neck Seat-pillar	4/2
Mabon Clutch, to fit N.S.U.	39/6
Harrison Back Rests new recommended	12/6
Price's Stands for 26in. wheels	5/9
Rushmore Pattern Lamps, mirror lens	15/11
Hollow Belt Drills, the best	1/6
"Forward" Adjustable Belt Fasteners	1/6
Double Twist Horns	4/6
Three-note Horns, large size	7/11
Magneto Cut-out, special type	2/6

MOTOR BICYCLES FOR SALE.

4-CYL. F.N., in good condition, new Michelin back tyre; £16.—Brumwell, Ecklington, Pershore.

2½h.p. Triumph Motor Cycle (unused), condition as new, Dunlop tyres; £20.—4,897, *The Motor Cycle* Offices, Coventry.

5h.p. Twin Roc, two-speed Roc gear, Peugeot engine, Palmer tyres, first-class condition.—Preston-Robinson, Leominster.

TRIUMPH, 1909, standard model, £34; 5-6h.p. F.N., 4-cyl., 1909, in good condition, £30, bargain.—Stour Cycle Depot, Stourbridge.

SCOTT, two-stroke, 55 guineas; Premier, 3½h.p. twin; Moto-Reve, 2h.p. twin; all in stock for immediate delivery.—Stour Cycle Depot, Stourbridge.

1909 Standard Triumph, in good condition; first offer over £32 cash accepted; trial allowed.—Box No. 4,962, *The Motor Cycle* Offices, Coventry.

REX, 5-6h.p., twin, Continentals, butt-ended tubes, two accumulators, 1in. Dermatine belt, spare belt; £14; any trial.—Howard, Brithdir, New Tredegar.

2½h.p. J.A.P., Brown and Barlow, handle-bar control, new Dunlop tyres, just overhauled, bushed, re-enamelled, etc.; £12 10s.—Wheeler, Avenue Rd., Astwood Bank, Redditch.

ROVER, 3½h.p., perfect running order, Amac, h.b. control, new Watawata and back tyre, engine rebored, new Dome piston; approval; £15.—Williams, Cliftonville, Llandrindod Wells.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

1909 2h.p. Moto-Reve, new July last, very little used, as new; £22.—Laytons, Bicester.

3¼h.p. N.S.U., accumulator ignition, splendid condition, just overhauled, fast; £11.—J. C. Owers, Newbury.

3½h.p. Windec, magneto, new tyres, good condition; cumbean cycle part exchange.—H. Bacon, Shinfield, Reading.

1909 3½h.p. Humber, two-speed, new last June, and only done four months' light work, as new; £29.—Laytons, Bicester.

1909 5-6h.p. F.N., in splendid order, R.O.M. tyres, tools, spares, including inner tube; £30.—Hiscut, Queen's St., Portsmouth.

MOTOSACOCHE, 1908, good order, new heavy tyres, spare belt; £14; exchange, or offers.—Ingleside, Station Rd., Christchurch, Hants.

1908 Triumph, 3½h.p., new tyres, engine and cycle recently overhauled by makers; worth quite £35, our price £30.—Laytons, Bicester.

5h.p. Twin Antoine, Chater-Lea, Palmers, plain coil, automatic inlet, footboards, spares; £17; seen by appointment.—Jull, Electricity Works, Fareham.

DOUGLAS, 1910, model C., Rom tyres, Lyso belt, Miller's patent mudshields back and front, tools, spares, etc.; £33.—"Auchencairn," Worcester St., Gloucester.

1909 Minerva, 3½h.p., carefully used, Mabon clutch, Cowey speedometer, two new spare butt-ended Michelins, and all other spares; £30.—Cross's Garage, Oxford.

N.S.U. Lightweight, 1908, Bosch magneto, studded back, all accessories, very little ridden, perfect condition; exceptional bargain; £14, lowest.—52, Castle St., Bristol.

5h.p. 1910 Indian, green, not run 2,000 miles, perfect condition, owner buying car; trial with pleasure; £42 10s. cash, no offers.—Angas, Magdalen College, Oxford.

3½h.p. Quadrant, 1908, Bosch magneto, with all spares, Clincher tyres, in good condition, machine recently overhauled; £20, or offers.—4,360, *The Motor Cycle* Offices, Coventry.

BARGAIN, 3½h.p. Quadrant, 1908, new Kempshall back, adjustable pulley, B. and B. handle-bar control, splendid condition; £18.—St. Hilda, Penn Rd., Beaconsfield.

4h.p. Twin N.S.U., spring forks, magneto, two-speed, as new, just overhauled N.S.U., extras—spring toolboard, new Model de Course cover, tube, pulley, spares; lot £33; tried.—Alresford Motor Wks., Hants.

2¼h.p. Clement-Garrard lightweight, new 26in. Michelins, Lithanode, Brooks V belt, electric headlight, perfect, very low, and many spares; £9.—E. C. Hiles, 78, Gloucester Road, Bishopston Bristol.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

3¼h.p. Rex, good running order, Palmer tyre; £8.—233, High Rd., Chiswick.

3¼h.p. Rex, in good order, new Michelin tyres; £10.—80, Torriano Av., N.W.

4½h.p. Twin Minerva, 1909, as new; cash £20.—8, Mayfield Place, Eastbourne.

F.N., 1½h.p., quite new; can be seen any time.—11, Brecknock Rd., Camden Rd., N.

MOTOR BICYCLES FOR SALE.

2½h.p. Humber, Chater-Lea, low, splendid climber, belt drive, vertical; £9.—Below.

3h.p. Fafnir, Chater, adjustable pulley, h.b. control, spring forks, perfect; £12.—Below.

TRIUMPH, 1910, standard, just delivered, unerated; £48 10s.—8, Oppidans Mews, Chalk Farm.

2½h.p. J.A.P., Dunlops; £6 10s., or offer.—86, Haringay Rd., Green Lanes, London.

REX, 3½h.p., magneto, good condition; £17, or near offer.—E.C., 77, Willesden Lane, N.W.

5½h.p. Rex, twin wheel, Roc clutch, magneto; £18.—Haffenden, jeweller, Brompton Rd.

2¼h.p. Bradbury; price £12; particulars on application.—Beynon, Bath Place, Worthing.

4-CYL. F.N., 4½h.p., lamp, horn, spares, excellent condition; £22.—47, West Hill, Wandsworth.

DOUGLAS, 1910 models in stock; 38 guineas.—Lloyd and Son, Douglas agents, Lewes, Sussex.

BAT, 3½h.p., accumulator, trembler coil, lamp, spares, etc.; £14.—Tamplin, The Green, Twickenham.

PHANOMEN, 3½h.p., magneto, spring forks, footboards, perfect; £19.—Offers, 60, Atlantic Rd., S.W.

HAMPSTEAD for Bargains.—Heath Street Motor Works, 5, Heath St. Tel.: 2673, P.O.

HAMPSTEAD.—3½h.p. 1910 Kerry-Abingdon, almost new; £39, with accessories.

HAMPSTEAD.—3½h.p. Triumph, 1909, splendid condition, with all accessories; bargain, £35.

HAMPSTEAD.—1910 2¼h.p. two-speed F.N.'s; £40; no extra for easy payments.

HAMPSTEAD.—1910 Rexes, all models in stock; no extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; exchange or gradual payments taken; no extra.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4½h.p., latest model, handlebar control, condition splendid, with accessories; £22.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD for Moto-Reve Model A.; in stock; no waiting; no extra for easy payments.

HAMPSTEAD.—1909 3½h.p. Triumph, good condition, studded tyres; £34; all accessories.

HAMPSTEAD.—5h.p. Indian, 1910 (red), brand new; £48, cost £57.

HAMPSTEAD.—2¾h.p. brand new Zedel, No. 6 Chater-Lea low frame, incomplete; £12 15s.

HAMPSTEAD.—1910 3½h.p. two-speed Phelon and Moore, four weeks old; £50.

HAMPSTEAD for latest 1910 new 4-cyl. F.N.'s; in stock, no waiting.

HAMPSTEAD for Triumphs, in stock, new free engine models and standards; no waiting.

HAMPSTEAD.—5h.p. Vindee Special, 1908, free engine, magneto, and spring forks; £26.

HAMPSTEAD.—1910 Douglas, almost new, with all accessories; great bargain, £33.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexes, Humber, etc.; exchanges or gradual payments.—Rey, 5, Heath St. Tel.: 2676 P.O., Hampstead.

BRADBURY, 3½h.p., ball bearing engine, 87 by 87 mm.—Agents, Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., champion hill-climber.—Agents, Bright and Hayles, Camberwell.

BRADBURY, 3½h.p. models, 1910; £46.—Agents, Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., the low built machine.—Agents, Bright and Hayles, Camberwell. 'Phone, 309, Brixton.

BRADBURY, 3½h.p., holding a unique record in reliability trials.—Agents, Bright and Hayles, Camberwell.

BRADBURY, 3½h.p.; £46; good allowance on old machine.—Bright and Hayles, 73, Church St., Camberwell.

BRADBURY Agent for N.W. London.—Gardner, High St., Hampstead.

3½h.p. Rex, in good condition; £8 10s.—Boyd, 4a, Roman Rd., East Ham.

TRIUMPH, 1909, good condition, Palmer, spares, good lamp.—244, Clapham Rd., S.W.

INDIAN, 5h.p., not to be distinguished from new; £50.—Fisher, 6a, High St., Hampstead.

3h.p. Triumph, vertical engine; £12 10s.—Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

LIGHTWEIGHT, 1¾h.p., good order, new belt; £8 10s., offers.—71, Burghley Rd., Hornsey.

1909 F.N., 4-cyl., perfect condition, fast; £30.—A. Blanch, 69, Church St., Chelsea, S.W.

REMOVING BARGAINS.

YOUR offers carefully considered,

BARGAINS IN 1909 REXES. 1909

1909 3½ h.p. Tourist **REX** £35
1909 5-6 h.p. Twin **TOURIST** £37
1909 5 h.p. **REX DE LUXE**, two-speed.. £48
Compare these with 1910 prices.

OTHER GENUINE BARGAINS.

2¼ h.p. 1910 **F.N.**, two-speed model, brand new, in crate	£38	0
2¾ h.p. 1910 **DOUGLAS**, almost new	£35	0
1909½ 5 h.p. **REX**, speed model	£35	0
3½ h.p. **QUADRANT**, spring forks	£19	0
1908 5-6 h.p. Twin **REX**, Roc clutch, magneto, h.-b. control	£30	0
MOTO-REVE, magneto, h.-b. control, Druids	£23	0
5 h.p. Twin **VINDEC**, magneto, h.-b control	£25	0
1908 **REX**, magneto, black and gold	£19	0
3 h.p. **SINGER**, magneto, h.-b. control	£17	0
6 h.p. 1909 **N.S.U.**, two speeds, magneto, h.b. control	£44	0
3 h.p. **CLYDE**, magneto, Druid forks	£16	0
3½ h.p. **REX**, magneto, h.b. control	£16	0
2 h.p. **QUADRANT**, very good	£6	0
5-6 h.p. Twin **PEUGEOT**, magneto, etc.	£30	0
1909 Two-speed 6 h.p. **REX DE LUXE**, only done 200 miles	£44	0
3½ h.p. **F.N.**, magneto, h.b. control	£18	0
5-6 h.p. Twin **REX** and Sidecar	£20	0
6 h.p. Twin **REX**, Roc, two speeds	£24	0
6 h.p. Twin **REX**, spring forks, 26in. wheels	£16	10
3 h.p. **VINDEC**, magneto, h.b. control	£18	0
1909 3½h.p. **REX**, magneto, etc.	£30	0
3½ h.p. **REX**, M.O.V., spray	£10	10
3½ h.p. 1906 **REX**, M.O.V., spring forks	£14	0
3½ h.p. **REX**, M.O.V., vertical	£10	0
1908 **N.S.U.** Lightweight, Bosch magneto	£19	0

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Admitted by all to be the finest popular priced sidecar on the market.

Note where the front arm grips the centre of the sidecar, and compare this design with the lob-sided and unmechanical attachment adopted by some makers.

£4 17s. 6d., complete with best tyres. Twelve months' guarantee.

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5½ h.p. **HUMBER** Tricar, wheel steering	£26	0
4½ h.p. **BRADBURY** Tricar, two speeds	£19	0
8 h.p. **BEAUFORT** Car, four-seater	£40	0
5½ h.p. **O.Y.A.V.**, nearly new	£50	0
5-6 h.p. **LITETTE** Tricar, water-cooled, Roc two-speed gear, handle starting, magneto ignition, a beautiful light tricar	£35	0

ODD BARGAINS.

1910 B. & B. latest pat. carburetters	£1	7 0
1910 Amac variable jet	£1	7 0
4/- allowed for old one.		
Latest type Bosch Plugs	2	9
N.S.U. Two-speed Gear for 1in. belt	£2	15 0
Brooks's B100 Saddle	9	6
Dunlop 28 × 2 and 2¼in. Wired Covers	12	6
6 h.p. Water-cooled Engine	£6	0 0
Forecar Attachment, 26in. wheels	£3	0 0
Rex Pattern Foot Brake, new	9	6
Bowden Front Motor Brakes, new	8	6
8 h.p. Twin Rexette Engine, two speeds	£12	0 0
Longuemare, Amac, B. and B., etc., Carburetters each	5	6
Premier Magnetos, new	£2	19 6
Clincher Tubes post free	6	6

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Good Motor Cycles. Cash Waiting.

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SQUARE ROAD, HALIFAX.

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MOTOR BICYCLES FOR SALE.

TRIUMPH Motor Cycle, 1908, as new, done 2,000 miles; £30.—6, Vale Av., Tunbridge Wells.

3½h.p. Rex, Longuemare, in flood running order.—5, Oswin St., St. George's Rd., Southwark, S.E.

1908 N.S.U., 3h.p., in good condition and running order, lamp; £16.—N., 45, George St., Richmond.

TRIUMPHS, free engine and standard, from stock, brand new 1910 models.—5, Heath St., Hampstead.

3½h.p. Aster Motor Cycle, spring forks, low, splendid condition; £11.—140a, Camden Rd., London, N.W.

WHITTLE'S.—Roc, 4h.p., latest, magneto, h.b. control, two speeds, clutch, as new; £30.

WHITTLE'S.—Bat, 3½h.p., spring frame, almost as new; great sacrifice, £18 10s.

WHITTLE'S.—Alcyon, 4-5h.p., twin, spring forks like new; extra cheap, £15 10s.

WHITTLE'S.—Bat-J.A.P., 6h.p., twin, spring frame and forks, splendid order; £22 10s.

WHITTLE'S.—F.N., 4½-5h.p., 4-cyl., magneto, spring forks, nearly new, unscratched; cheap, £28.

WHITTLE'S.—Bat, 3½-4h.p., spring frame; bargain, £13 10s.—Whittle's Motor Exchange, Earlsfield, Wandsworth.

GODFREY and Applebee.—Indian, 1910 model nearly new, run about 800 miles, perfect; £46 10s.

GODFREY and Applebee.—Rex, 5h.p., cantilever seat, spring forks, good condition; £16 10s.

GODFREY and Applebee.—Triumph, 1909, T.T., winner on Brooklands; £36 10s.

GODFREY and Applebee.—Quadrant, 3½h.p., spring forks; bargain, £8 10s.

GODFREY and Applebee.—Triumph, 1909, standard; £35.

GODFREY and Applebee.—Rex, 3½h.p., 1909 standard, Mabon free engine clutch, new Kempshall on back; £27 10s.

GODFREY and Applebee.—Minerva, 3½h.p., magneto, 1909 model; £21.

GODFREY and Applebee.—Speed King Rex, 3½h.p., 1909 model, a hill-climb winner; 29 guineas.—Broadway, Muswell Hill, London.

F.N., 2h.p., spray carburetter, trembler, going order; £6 10s.; appointment.—S., 90, Harbord St., Fulham.

2¼h.p. Werner, in good running order; £6 10s.—7, Wandsworth Bridge Rd., Fulham.

LIGHTWEIGHT 1¾h.p. F.N., £7 10s.; also 2¾h.p. Minerva, £6 10s.—227, Underhill Rd., E. Dulwich.

2¾h.p. Kerry, accumulator ignition; only wants tuning; what offers?—Chubb, Brighton Rd., Horsham.

REX 2½h.p. Lightweight, new condition, magneto, 1910 Amac, Druids; £16.—5, Brooksby St., Islington, N.

2½h.p. Quadrant; £6 10s.; long, low, good tyres, running order.—Write, Lemin, 14, East Peabody Sq., Chelsea.

3½h.p. Spring Frame Bat, Whittle belt, Palmer tyres Brooks saddle; £16.—202, Southampton St., Camberwell.

1910 Kerry-Abingdon Special, delivered middle May, not ridden 200 miles; £38.—155, Brockley Rd., Brockley.

4½h.p. Twin Werner, low, tyres and engine excellent, smart appearance; £15.—S. Holmes, 7, Old Oak Rd., Acton.

PREMIER 1910 3½h.p. Twin, brand new; offers wanted.—Box No. 4,889, *The Motor Cycle* Offices, Coventry.

4½h.p. F.N., latest improvements; £24; only wants seeing, by appointment.—80, Cambridge St., London, S.W.

2¾h.p. Excelsior, inclined engine, good condition; £8, or near offer.—30, Carminia Rd., Upper Tooting, S.W.

3½h.p. Rex, spring frame, h.b. control, B. and B. carburetter, perfect; £12.—43, Wimbledon Rd., Tooting.

3½h.p. N.S.U. 1908 motor cycle, in perfect order magneto; £17 10s.—9, Little King St., Camden Town, N.W.

3½h.p. N.S.U., magneto, Peter-Union, long, low, fast £12 10s.—Witt, 10, Talbot Rd., St. Margaret's, Twickenham.

MINERVA, 3½h.p., Brown-Barlow carburetter, h.b control, as new; £15.—1, Fieldsway House, Highbury Crescent.

6h.p. Bat, spring frame and forks, drip lubricator, excellent condition; £25; sidecar, £5.—W.W., West Oaks, Weybridge.

TRIUMPH, 3½h.p., 1907, purchased new May, 1908, in first-class condition, with lamp and accessories, complete; £26.—Gallup, 480, Garratt Lane, Earlsfield, S.W.

6h.p. Twin J.A.P., gear drive, magneto, No. 6 Chater, Druids, Amac, new condition; £35; exchange P. and M., or Triumph.—Matthews, pawnbroker, West Croydon.

MOTOR BICYCLES FOR SALE.

SCOTLAND'S Largest Motor Cycle Firm.—Rex, V.S., Indian, Moto-Reve, Phelon and Moore, Zenith, Douglas, Roc, Griffon; we stock all these, and can supply any other make.—Alexander's Motor Exchange, Lothian Rd., Edinburgh.

POWERFUL Motor Cycle and Mills-Fulford forecar, Stevens engine, adjustable pulley, Watawata, guaranteed in thorough condition, smart and reliable; sacrifice £10 10s. quick sale.—No. 4,959. *The Motor Cycle* Offices, Coventry.

FOR Sale, 5h.p. 1910 T.T. Matchless J.A.P., with Millford sidecar, Nala two-speed gear, and free engine, spring forks, 2½in. tyres (very heavy), Polkey lamp, with generator, horn, spare tube, tools, etc., all in first-class condition, bought three months ago; would exchange for lighter machine and cash adjustment; cheap; trial given; can be seen at nights after 7, or Wednesdays and Sundays at any time.—Apply, Jas. Wilson, jun., Ashgrove Cottage, Blackridge, West Lothian (West Craigs Station).

SECTION XI.

Ireland and Isle of Man.

7-9h.p. Peugeot, Chater, B. and B., h.b. control, accumulator, Palmer cord and Clincher non-skid, machine brand new, not ridden 500 miles; would accept £27, or exchange for lower power and cash adjustment; above machine can be had with or without Fit-all two-speed.—Robert Mercer, Main St., Caledon.

TRICARS FOR SALE.

CHATER-LEA 9h.p. J.A.P., new; photo; price, particulars.—Hadlow, Teynham, Kent.

A BARGAIN.—Singer motor tricar, in excellent condition.—May be seen at 83, Worship St., E.C.

LIGHT Tricar, 4h.p Aster, water-cooled, two-speed, free engine; £16.—149a Camden Rd., London, N.W.

4h.p. W.C. Addison, two-speed, chain, perfect, 75 to gallon; cost £8S, £21.—Holly Bank, Cheadle Heath.

ROVER, water-cooled, two-speed, car tyre; appointment; £18, or offer.—White Lodge, 209, Brixton Hill.

TRICAR, 2¾h.p. Minerva, Phœnix Trimo, Longuemare, basket; trial; bargain, £8.—A. Stock, 68, Clissold Rd., N.

TRICAR, 3½h.p., in good running order, tyres good as new, very reliable; £12.—76, Willesden Lane, Kilburn, N.W.

3½h.p. W. and P. Tricar, four speeds, free engine, good condition; £18.—Full particulars, apply, Knox, Larches, Banstead.

6h.p. Twin Antoine Tricar, Duco non-skid, Palmer cords, as new, fast and reliable; trial, appointment; bargain, £25.—Below.

5h.p. Rex, coach built, good tyres, water cooled, fine condition; to clear quick, £18.—Harris, 12, Loampit Hill, Lewisham.

MESSRS. R. M. Pullman and Bros., London Rd., Norbury, London, have several cheap but good tricars for disposal; list free.

4h.p. Rex Tricar, chain, clutch, new tyres, powerful, good order guaranteed; £14 10s.—Ramsbottom, 205, Whalley New Rd., Blackburn.

SUNBEAM-MABLEY Runabout Tricar, two speeds, free engine, water-cooled, De Dion engine; £15.—Murray, 37a, Charles St., Hatton Garden.

8h.p. De Dion, water conled, two speeds, free engine, Renold's silent chains, splendid condition; £32.—Bruderer, 100, St. John's Rd., Hoxton, London, N.

6h.p. Rexette Water-cooled Tricar, two speeds, handle starting, open frame, coach-built, in perfect order; bargain, £28.—54, Bartholomew Rd., London, N.W.

REX Triette, new, F.R.S. lamps, many accessories, to be sold under exceptional circumstances.—Apply, Box 4,938, *The Motor Cycle* Offices, Coventry.

REX Twin, 5-6h.p., basket seat, three brakes, spring seat pillar, good order; cheap to clear, £15.—R. M. Pullman and Bros., London Rd., Norbury, London.

6h.p. w.c. Rexette Tricar, two-speed, wheel steering, coach built, sprung frame; cost £120, take £27 or motor cycle.—Hart, 35, Englefield Rd., Kingsland.

£20.—Motor tricar, 5½h.p., air-cooled, free engine, two-speed, coach-built, thorough order, ready for road.—Apply, Tompkins, 8, Bryanston Mews East, Montagu Place, W.

RALEIGHETTE, 6½h.p. Fafnir, twin, water cooled, three speeds, Palmer tyres, lamps, tools, spare chains; £38; any trial.—Howard, Brithdir, New Tredegar.

7-8h.p. Garrard Tricar, open frame, wheel steering, coach built, three-speed Panhard gears, clutch, worm drive; £28, or near.—156, Frith Park Rd., Sheffield.

REXETTE 6h.p. water-cooled tricar, in perfect order; trial by appointment; complete with lamps, tools, apron, etc.; £30.—Gidden, 36, England Lane, Hampstead, London.

QUADRANT Tricar, 6h.p., two engines, two gears, wheel steering, tyres sound; owner bought car and needs room; no reasonable offer refused; inspection any time.—Kennedy, The Corner House, St. James's Av., Hampton Hill.

SHILLINGS FOR MOTOR CYCLISTS,

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TRICARS FOR SALE.

RILEY Tricar, 5h.p., water-cooled, fine hill-climber, bucket seat for driver, coach-built body, wheel steering, free engine, excellent condition.—561, Green Lanes, Harringay.

SINGER Tricar, 9h.p., 2-cyl., three speeds and reverse, water-cooled, wheel steering, coach-built body, extra wide front seat, good condition; accept £42.—Norton, solicitor, Huddersfield.

RILEY Tricar, 9h.p., 2-cyl., three speeds and reverse, water cooled, wheel steering, coach-built, newly painted, in splendid condition; trial; £35.—114, Park Rd., Aston, Birmingham.

RILEY, 6-8h.p., three speeds, reverse, front doors, screen, lamps, horn, carrier, all accessories, new condition; cheap, exchange entertained.—91, Court Rd., Balsall Heath, Birmingham.

KENT Three-speed Tricar Gear for sale or exchange, in good condition, what offers; also light forecar attachment, 26in. wheels, upholstered wicker carriage, go through 3ft. 3in. doorway.—Taylor, 81, Orphanage Rd., Erdington.

LATEST 5-6h.p. Riley tricar, open frame, wheel steering, beautifully sprung, luxurious machine, in practically new condition, fast, absolutely reliable; cost £90, sacrifice £42, take magneto cycle part.—R. Else, Leawood, near Matlock.

4¼h.p. Phœnix Trimo, coach-built, two speeds and free, new tyres, h.b. control, Amac, just overhauled and repainted, splendid order, four new lamps, and spare accumulator; £28, or exchange for small car.—Marsden, Field Lane, Belper.

TRICAR, 4½h.p., De Dion engine, water-cooled, Chater-Lea throughout, by W. W. Genn Wimbledon, gear box, clutch, Dunlop car tyres, excellent condition, all spares; cost £110, accept £35, a bargain; seen any time; photo.—[illegible], Wimbledon.

VERY Fast Second-hand 4½-6h.p. Rover Tricar, in good running order, well sprung, bucket seat, wheel steering, Phelon and Moore two-speed gear, headlights, tail light, and spares complete, tyres new; will take £35, or offer.—J. F. Bell, Pentland House, Craigmillar, Midlothian.

6h.p. De Dion-Eagle Single-seated 3-wheeled Runabout, in new condition, wheel steering, two speeds, free engine, chain drive, car tyres (without a scratch), non-skid on back wheel, lamps, speed indicator, spares, etc.; bargain, £35, or near; must sell (would entertain exchange for good modern motor cycle), as shed is wanted.—51, Weaste Rd., Weaste, Manchester.

LIGHT Tricar, 3½h.p., two speeds and free, chain drive, handle starting, foot clutch, h.b. control, foot and hand brakes, all new tyres and gears, thoroughly overhauled at a cost of £20 last Easter, and is quite equal to new; £28 cash, or will give the above and £10 in exchange for small 2-seater car or open frame w.c. tricar of higher power.—Ward, 48, Holly Rd., Handsworth, Birmingham.

1909 Phœnix Tricar, 5-6h.p., water-cooled, two speeds, handle starting, plate clutch, wheel steering, open frame coach-built, 2½in. Palmer cord front, tyres unpunctured, 3in. steel studded Lonax back (new), also box, interchangeable with front seat, suitable for tradesman's carrier; price, with lamps, tools, and spares, complete, £40.—Duggins, Fitzhugh St., Southampton.

TRICAR, 1909, N.S.U., 6h.p., twin, fan cooled, m.o.i.v., Bosch D.A.V., latest two-speed and free back hub, 1in. S.G. belt, fast, and good climber, new extra strong coachwork, leather undershield, aprons, F.R.S. headlights, jack, pump, tools, spares, carrier and valise, etc., tyres large and as new, a most magnificent machine; has cost over £100, nearest offer to £60 accepted; fuller particulars and trial.—John Stanton, 41, Merridale Rd., Wolverhampton.

SIDECARS AND FORECARS.

OAKLEIGH Sidecar; cost £5 last March; offers invited.—47, West Hill, Wandsworth.

SIDECAR, rigid; £3, bargain.—Sumner, 84 Aylmer Rd., Wendell Park, Shepherd's Bush.

SIDECARS, beautifully upholstered, fit any make; £3 15s.—Rey, S, Heath St., Hampstead.

MILLS-FULFORD Castor Wheel Sidecar, new Palmer; bargain, £6 15s.—406, Garratt Lane, Earlsfield.

SIDECARS, fit anything, art cane, wicker, rush; from £3 15s.—Fletcher, sidecar specialist, King Sq., Bristol.

UNREDEEMED Chater-Lea Sidecar, this year's, used twice; £6 12s.; fit any machine.—Matthews, Pawnbroker, Croydon.

£3 10s.—Rigid sidecar, left, upholstered green, 26in. wheel, Riche's tube, good condition.—Sconce, Church St., King's Lynn.

MONTGOMERY Flexiole Sidecar, cane body, either side, with clips, for Triumph, good condition.—Organ, Stratford-on-Avon.

PHŒNIX Forecar, coach-built, in good condition, fit any machine, Michelin tyres; £6.—W. Elce, 47, King Edward Rd., Romford.

SIDECAR Millford, best, castor wheel, as new; £10; exchange lady's motor cycle, cash adjustment.—Cavell, Rendham, Saxmundham.

RIGID Sidecar, 26 wheel, good condition, £2; also nearly new rigid sidecar, 26 wheel, £3 10s.—Smith, 205, King St., Hammersmith.

MILLS-FULFORD Castor Wheel Sidecar, new condition; bought lady's motor cycle; accept £8 8s.—Gibb, Worcester St., Gloucester.

SIDECARS AND FORECARS.

SIDECAR, genuine Chater fittings, fit any frame, good condition; seen any time; lowest £4 5s.—Markham, 91, St. James Rd., Holloway.

SIDECARS, £4 17s. baskets, springs, fittings; trade supplied.—Middleton and Co., Watson St., Newington Green, London, N. 2126 Dalston.

FORECAR, sprung frame, 26in. wheels, Continentals unpunctured, powerful brakes, all complete; bargain, £5.—K., 649, Romford Rd., Manor Park, E.

FOR Sale, Montgomery flexible model de luxe sidecar, fit either side, equal new; cost £14 10s., accept £7.—O. S. Smith, Bangor House, South Bank, Yorks.

FORECAR, Chater-Lea, with long stays and footboards, two hand brakes, one tyre only, new; £3 15s., lowest.—106, Pritchard's Rd., Hackney, London, N.E.

12-GUINEA Sidecar, brand new and built throughout with Genuine Chater-Lea fittings, will fit Triumph, Roc, or P. and M.; £6 10s.—R. Ralph, Larkhall Rise, London, S.W.

SIDECARS to fit any machine; £4 4s.—Baskets, springs, fittings, in fact, anything for sidecars, can be obtained from Jack Cairns, sidecar manufacturer, London Rd., Preston.

SIDECARS, latest and best pattern, Chater fittings, quick attachments, plated rim, motor tyre, upholstered basket, fit any machine; £5 5s. from stock.—Green Bros., 53, Danby St., Peckham, S.E. Works, McDermott Rd.

THE Crowsley Spring Wheel makes an ideal sidecar; no vibration, easy steering, faster; level of sidecar can be adjusted to your own liking; any maker of sidecar can supply it; insist on having it on your 1910 sidecar; parts can be obtained from Messrs. Chater-Lea, or from E. A. Crowsley, 167, Victoria St., S.W.

SIDECARS.—Our special art cane body, Chater fittings, including hub, £7 10s.; our £5 10s., Chater fittings, and hub; our £4 15s. car is Chater lugs; all are complete with side stays and mudguard included; second-hands from £3 15s.; fitted while you wait free.—C. A. Edgar, 123, Holloway Rd., London.

OAKLEIGH Sidecars never give trouble. On or off in one minute, large roomy basket, adjustable to suit right or left hand, heavy motor cycle tyre, 26 by 2½, and Chater-Lea fittings, and the price £5; every customer a satisfied customer; competition defied.—Oakleigh Sidecars, Ltd., 65a, Rosendale Rd., West Dulwich.

SIDECAR COMBINATIONS.

5h.p. Rex (1906), and sidecar, very good condition; £17.—Stevens, 100, High St., Manchester.

T.A.C. and Sidecar, latest model; delivery June 25th.—Box 4,898, *The Motor Cycle* Offices, Coventry.

1908 6h.p. N.S.U., two speeds, rigid sidecar; £35, or exchange Motosacoche.—Read, 80, Mall, Newport, I.W.

1909 5h.p. Rex de Luxe, Chater-Lea sidecar, or separate; £35.—Locke, 45, Huddleston Rd., Tufnell Park.

3½h.p. N.S.U., and sidecar, magneto, splendid climber and in new condition; £20 the lot.—R. Harris, Lalcham-on-Thames.

F.N., 2¾h.p., and sidecar; £14; the lot or separate, good condition.—For particulars, apply to Green's Boot Stores, Thirsk.

HUMBER, 5h.p., two-speed, with Mills-Fulford castor wheel sidecar, in splendid condition; £25.—Vernon Whitehead, Abingdon.

VINDEC Special, 5-6h.p., magneto, two-speed, sidecar, accessories; trial, examination; perfect; £30.—Kenny, 30, Overton Rd., Brixton, S.W.

PHELON and Moore Two-speed Motor Cycle, with sidecar, castor wheel, complete with spare tyre, chains, and accessories.—Heath and Wiltshire, Farnham.

5h.p. Sarolea and sidecar, h.b. control, low build; £18 cash; exchanges entertained (London only) for lower power, free engine.—183, Twickenham Rd., Leytonstone.

1908 Roc, magneto, 2-speed and free, handle starting, Dunlops, h.b. control, speedometer, mirror lamp, rigid sidecar, mirror, absolutely perfect; £31.—10, Crieff Rd., Wandsworth.

LOOK up Tamplin for reliable bargains.—3½h.p. 1909 magneto Rex and Millford castor sidecar, complete with spares, improved spring forks, Amac, Whittle, ready to ride away; £30, perfect.

5½h.p. Twin Kerry, two-speed gear, clutch, handle starting, Amac, footboards, silent, with Montgomery spring wheel sidecar quick detachable, re-enamelled, plated low, handsome combination; nearest to £37.—12, King St., Twickenham.

5h.p. Twin and sidecar, h.b. control, free engine, spares, tools, everything perfect; lowest, 25 guineas, no exchange.—F. Whittingham, 60, Chatsworth Rd., Clapton, N.E.

3½h.p. M.M.C., fast, powerful, Chater-Lea frame, no pedals, spring footboards, low built, long bars, sidecar built to suit; good condition; complete £16 10s.—Smith, 78, Olney St., Walworth, S.E.

4h.p. Chater-Lea-Kelecom, spring forks, detachable sidecar, good condition, Palmers, Michelin, almost new, adjustable pulley, accessories; trial by appointment; £22.—S.T.S., 139, Bathurst Gardens, Willesden Junction.

THE ROADS ARE DRY.

Let's get away on one of

HITCHEN'S MOTOR BIKES.

Please note the above is "Poetry." Lest you forget, these Machines can be purchased at

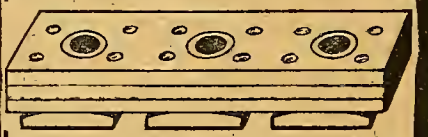
HITCHEN'S

163, EUSTON ROAD, MORECAMBE,

Telephone: 112.
Telegrams: "Motor, Morecambe."

on terms to suit all. Any accumulator machine with £3 down and 5/- per week. Any magneto model on best cash terms, with full allowance on old machine.

By-the-by, how does this suit for Belting? Cheaper and better than the best of Rubber.



⅝in. 1/-, ¾in. 1/2, ⅞in. 1/4, 1in. 1/6 per foot; just right for your summer visit to Morecambe Bay and the Lakes.

Summer Holidays by the Sea.

I shall be glad to arrange daily trips from Morecambe to those garaging with me. A fortnight can be spent enjoyably in this district.

Machines Cleaned, Garaged supplied with petrol, oil, and kept up to the mark. What more can man want except fine weather? This in Morecambe has so far been grand this year.

Sidecars are lent to steady drivers. Come and spend your holidays with me. I can arrange for plenty of variety and an enjoyable time.

Morecambe Sidecars.

Easiest to ride, easiest to detach; mudguards; best value, **£4 17s. 6d. & £5 5s.**, ready for the road, fitted in three minutes.

1910 Models in Stock.

F.N., P. & M., Scott, Bradbury, Enfield, Moto-Reve, Motosacoche, Indian, Premier, N.S.U., Zenith Gradua, two-stroke Rex, Speed King, Humber, Omega, Moto Velo. Best of terms. Cash or Exchange.

Magneto Machines.

Of these I have best Stock in the country. Speed Machines, Sidecar Machine Models, Lightweights, at right prices for cash.

State your Wants.

I buy what you want to sell, and sell what you want to buy. This is trade, and I am wanting that little order. Send for lists, boys, at once. The Garage Canary is doing fine; but one death in the family. Got worried by a Pom. Wish I had caught him on the job. However, "Goodbye," while next week. Don't forget MORECAMBE when fixing up your holidays.

Note Address as above

SIDECAR COMBINATIONS.

6h.p. Twin J.A.P., Chater-Lea, and sidecar, splendid condition; offers.—W., Burlington Studio, The Mall, Ealing.

1909 Phelon and Moore, 3½h.p., two-speed and free engine, with Millford 12 guinea castor wheel sidecar, all as new, will fire at walking pace, Clincher studded tyres, spare brand new studded tyre, Lucas King searchlight and generator, large horn, many extras; cost over £70, accept £46.—John Webber, Cranfurdrise, Maidenhead.

BROWN, 3½h.p., purchased new May, 1909, Mabon free engine, Fulford rigid sidecar (new tyre), powerful, driven 1,400 miles, Brown-Barlow, h.b. control, Palmers, excellent condition throughout, stand, carrier, accessories; trial; appointment; sacrifice £25, lowest, or separate.—Willmott, 53, Graces Rd., Camberwell, S.E.

1910 5h.p. Rex Sidette, Roe two-speed gear, only ridden 50 miles, in absolutely perfect condition butt-ended tubes, and one spare, special box under sidecar (cost 25s.), storm apron (cost 30s.), Cowey speedometer; total cost £83 4s. in May; will sacrifice for £73 4s.—M. Meta, 2, Sydney Rd., Richmond, Surrey.

MOTOR TRICYCLES AND RUNABOUTS.

DE DION Tricycle, water-cooled; £14, or offer.—138, Duke St. Park, Sheffield.

DE DION-PROGRESS Tricycle, 3½h.p., Dunlops, in perfect condition, two hand brakes, Longuemare carburetter, coil ignition, grand going order; great bargain, £8, or nearest offer.—W., 41, Church St., Lee, S.E.

QUADCARS.

8h.p. Phœnix Quadcar, 2-cyl. Fafoir, two speeds, reverse, splendid condition, every refinement, faultless, very smart; £40.—128, High Rd., Tottenham.

CARS FOR SALE.

ECLIPSE.—18-22h.p. Darracq, 1908, dual ignition, long chassis; sacrifice £145.

ECLIPSE.—18-22h.p. Clement, side entrance, magneto, long chassis, hood; £125.

ECLIPSE.—18h.p. Siddeley, side entrance, hood, screen two ignitions, perfect; £115.

ECLIPSE.—16h.p. Chenard-Walcker, 1907, side entrance, magneto, hood; £115.

ECLIPSE.—14h.p. Forman, side entrance, very smart steel frame; £85.

ECLIPSE.—14h.p. Mutel, 4-cyl., steel frame, in excellent order; £65.

ECLIPSE.—12h.p. J.P., 2-cyl., long chassis, hood, perfect order; £78.

ECLIPSE.—12h.p. Gnome, landaulet, very good order; £75.

ECLIPSE.—16h.p. Panhard Chassis, Krebs, steel frame; £55.

ECLIPSE.—12h.p. Star box van, good order; £48.

ECLIPSE.—6h.p., De Dion engine, 2-seater, hood; £35.

ECLIPSE.—6½h.p. Gladiator, very smart, four seats; £31.

ECLIPSE.—28-36h.p. Daimler, side entrance, dual ignition, screen; a bargain, £175.

ECLIPSE.—20-32h.p. Darracq, side entrance, magneto, canopy, fine order; £135.

ECLIPSE.—20-32h.p. Darracq, side entrance, hood, splendid condition; £140.

ECLIPSE.—6h.p. Siddeley, 2-seater, excellent order; £36.

ECLIPSE Engineering and Motor Co., 255, Earlsfield Rd., Waudsworth. 'Phone, 1135 Putney. Station, Earlsfield, L.S.W.R., 15 minutes from Waterloo.

6½h.p. Smart Peugeot 2-seater Car, good tyres, lamps, accessories; £36.—Below.

10-12h.p. Darracq Car, 2 cyls., complete with lamps, accessories, fine car; £58.—20, Potternewton Lane, Leeds.

6h.p. De Dion Car, in very good order; trial; £55.—Fowler, Womersley, Pontefract.

12-14h.p. M.M.C., 2-cyl., 4-seater, three speeds and reverse; £47 10s.—Below.

12-16h.p. Denuis, twin-cyl., 2-seater, three and reverse, h.t. magneto, shaft drive, just done up, smart car; £65.—Below.

7-9h.p. Brown, 2-seater, racy type, racked steering, three and reverse, fast and reliable, just repainted, bargain, £50; 7-9h.p. Star, 4-seater, three and reverse, excellent condition, many refinements, £47 10s.—Below.

8h.p. De Dion, one cylinder, two speeds and reverse, 4-seater, excellent condition, useful little car; £48 10s., cash or easy terms, exchanges entertained.—Stamford Hill Motor Co., 128, High Rd., Tottenham. 'Phone, 1982.

5½h.p. O.T.A.V. Voiturette, new Dunlops, magneto, hood.—Home, Electricity Works, York.

5½h.p. Peugeot, three speeds and reverse, in good order; £35.—E. C. Porter, 54, St. John's Rd., Clapham Junction.

THE MOTOR CYCLE

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Tests on Road and Track.

BY the time this issue is in the hands of our readers the Fifty-nine Lap Race at Brooklands for the Tourist Trophy machines will have taken place and the results be known. The race, as most of our readers know, was arranged to represent as far as possible the distance ridden in the Tourist Trophy Race in the Isle of Man, but the riding conditions were different in every respect. Instead of a series of short dashes, with continual and sudden slowing down and rapid accelerating at sharp corners, the ascent and descent of moderate, and in some cases rather severe, gradients, yesterday's race was held on a flat and comparatively smooth track. The conditions raise rather an interesting point as to which event provides the more severe test for a motor cycle engine, and opinion differs greatly. Let us consider the two sets of conditions, eliminating for the moment the personal equation. In the case of the T.T. Race the engine is called upon to exert its maximum power for short distances, with rapid decrease and acceleration of speed at corners. Occasional hill-climbing and high speed over rough roads render the conditions more severe. On the track the engine is called upon to turn round at its fastest rate, and the strain may be said to remain practically constant. The gear ratio may be higher, as there are no gradients to account for. The query arises, Which series of conditions are of the greatest service in the evolution of the perfect motor cycle engine? Other things being equal, which is the better engine for all-round conditions, one which will survive a trial at full speed under full load for several hours without variation, or one that will climb hills, run at high speed on the level, and rapidly accelerate when required after slowing down to turn corners? Some riders are of the opinion that the ascents and descents of the Manx course equalise the strain on the engine, because, although the utmost power that it is possible to obtain from a given cubical capacity is used for hill-climbing, the engine obtains a certain amount of relief when descending hills on reduced throttle and occasional switching off for corners. On a racing track like Brooklands there is no relief or idle moment for the engine from the start to the finish of the contest. Every part of the engine undergoes a continuous effort equivalent to, if not more exacting than, a bench test under full brake load for the same period of time.

It is no secret that several competitors in the Tourist Trophy Race profited greatly by continual practice on Brooklands, and were able to make adjustments and improvements that proved of the greatest benefit in the island. At the conclusion of yesterday's race of 163 miles 103 yards, more would be known of the subject from actual experience, and it would be interesting to hear the views of competitors as to whether the continuous grind of the flat race or the undulating and winding course in the Isle of Man proved the more exacting.

Still another feature which will be looked for with the greatest interest is the comparative speed performances of single and twin-cylinder machines and the positions in which they finish relative to one another. For example, in the T.T. there was a margin of 1om. 34s. only between the winning twin and the first single-cylinder machine. It was, however, generally considered that in yesterday's straightaway event the gap in the time would be much more pronounced. Before the race it was expected in all quarters that higher speeds would be accomplished by both types on the track, presuming that the same riders took part.

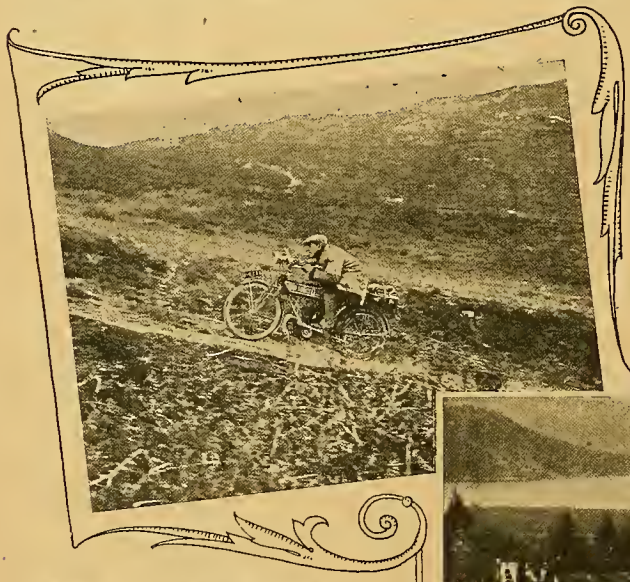
THE SCOTTISH TRIALS.

A RETROSPECT.

By B. H. Davies.

"THE severest test motor cycles were ever put to." Such was the verdict passed on the Scottish Trials of 1909. The organisers were severely criticised, first for adding to the list of trials, secondly for making their tests so exacting. They have replied to their critics by repeating the trials again in 1910, and by selecting a course even more severe. Let us examine the foundations of their obstinacy.

There are lots of hard riders and business men in Scotland who would use motor bicycles for business purposes if they thought the machines could stand



J. Slaughter (3½ h.p. Ariel) making light work o Glendoe Hill.

the racket and climb the hills. The Scottish railway service is limited in area, and where its tracks go the service is generally very poor—limited to two or three trains a day in many places. There is a tremendous market for motor bicycles in Scotland, which up to the present has scarcely been tapped; and it is among men who are neither able nor willing to confine their roadwork to the comparatively few broad highways which intersect the country. To such men as these the English trials are of little meaning. The A.C.U. riders last year complained about the surface of one road near Festiniog. If they had been through the Scottish Trials they would think it excellent. If this new market is to be tapped the Scottish Trials are necessary, the severity of their route is necessary, their value is enormous. Such is the conviction which inspires the work of the Edinburgh M.C.C.

The Trials as an Advertisement.

When all timid critics were decrying their course as impracticable, and only nineteen riders had the pluck to enter, it is distinctly encouraging to find fifteen machines finishing, and to note that three of the retirements were due to accidents for which the riders concerned were responsible, and the fourth to delaying the preparation of a machine to the last minute. Further, four machines, and two of them lightweights, scored full marks, and the next six divided a total delay of less than three hours between them during the six days. The machines concerned should reap a gorgeous advertisement north of the Tweed.

The Conduct of the Trials.

The trials were efficiently and courteously conducted. The sole breakdown in the organisation lay

P. W. Bischoff (1909 Triumph) passing an observer on Aultremain Hill.

The Scottish Trials.—

in the marking of the route at a few points, and here the competitors were indulgent, for the sections were miles away from towns, where it was very difficult to get the necessary marking properly done.

Were the Hills Too Steep?

Some of the Scottish journalists and a few of the less fortunate riders complained that the severity of the hill-climbs passed all reason. Personally, I am all for the inclusion of the severest hills which can be found, so long as too much trick riding is not demanded. Few private users need to set their machines at hills quite as trying as Glencroe, or Allargue, or Amulree. But if a specially tuned machine ridden by a lightweight mechanic could climb those hills (which was not the case in most instances this year), it by no means follows that machines in average condition ridden by unskilled and ponderous amateurs can climb them. The hill tests in trials should be far more severe than the tests to which the amateur is likely to subject his mount, for if all trials organisers set the trade a severe hill-climbing test we should get more rapid improvement in climbing capability. But in its attention to this point I think the E.M.C. made one mistake, viz., it was scarcely necessary to compel the riders to cover miles of villainous road either to get at these hills or to get off them. I see no objection to bringing the men to a steep hill along the best road that exists, and when they have climbed it allowing them to descend in a body and go home by a good road again.

G. L. Fletcher (Douglas) rounding the second bend, another view of which is seen in the lowest illustration.

ASCENDING AMULREE IN THE SCOTTISH TRIALS.

J. T. Wood (Zenith-Gradua) at the first bend. The beginning of the second curve is seen in the top left-hand corner.

A competitor dismounted at the second bad corner until his machine picked up speed again.

Few Mechanical Troubles.

Quite the most delightful aspect of the trials was the almost complete absence of mechanical troubles. No trial was ever so severe, yet from none has the motor bicycle emerged with its escutcheon so unblemished. The few mechanical troubles recorded were the result of spills, and the spills were not caused by the road conditions, let me say. Apart from collisions, I heard of but two mechanical troubles, two or three broken valves, and a loose drain tap.

Tyres.

Tyres gave some trouble, as they invariably do, and had it not been so there would have been quite a glut of gold medals; but punctures were as cheap as blackberries in September. Nor were the roads to blame. As a general rule, the stones on Scottish roads are not sharp. In proof of this, I may evidence the tyres of the little Ford car which I drove round the route, which were scarcely worn at all; we had one puncture, and the tyres showed two or three very small cuts. Any car driver will know these facts are a testimonial to the roads. On the other hand, it is no exaggeration to say that the nineteen entrants between them suffered more tyre stops than they should have done. The only qualification this statement demands is the fact that several riders were rank duffers at tyre repairs, and for some of their troubles they had chiefly got themselves to blame.

Good Belts but Bad Bags.

Belts behaved remarkably well, though rain—the belt's worst enemy, scarcely put in an appearance. Belt fasteners—of which in general I have a poor opinion—gave very little trouble indeed. Engines, carburetters, ignition, brakes, saddles, stands, carriers, levers, and detail fittings all proved more than equal to the severe strains encountered; but I noticed that few riders possessed proper toolbags. A cheap bag dissolves; an inconvenient bag is hurriedly packed and fastened when time is precious.

Hill Climbing.

The hill-climbing was rather disappointing. The published reports show in detail which machines behaved best. It was impossible to observe the riders on many of the minor ascents, though these were so severe that most English clubs would be glad to transport dozens of them to their own locality for test purposes.

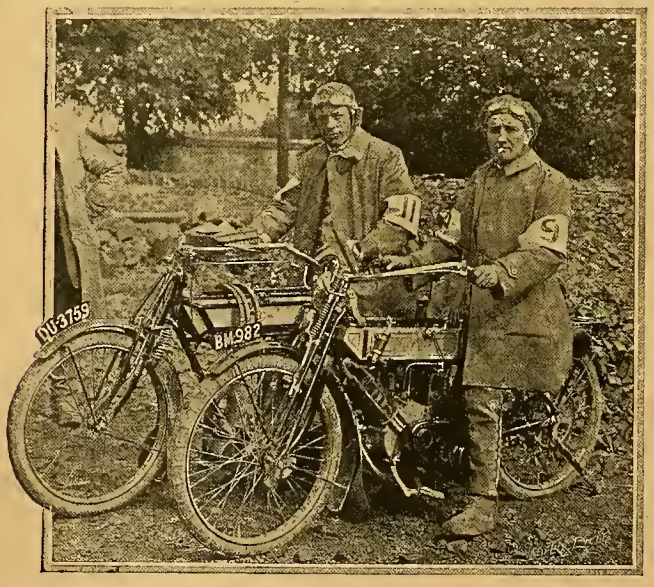
Of the half dozen crucial ascents Glendoe was the

The Scottish Trials.—

S. J. K. Thompson and his passenger coaxing the single-geared Bat and sidecar round the first bad bend of Amulree. It requires considerable audacity to start in a competition like the Scottish Trials with a single-geared passenger machine.

only hill on which a good average was obtained. It is a very severe hill, but it is open and straight, and the men were allowed an hour for tuning purposes; they all did well. On the long ascent up Glencroe most of the two-speeded machines failed as badly as the single gears, showing that the cooling problem is not yet solved, and even holding out a pointer in the direction of water-cooling for extremely hilly countries. On the other bad hills, *e.g.*, Cairnwell ("Devil's Elbow"), Allargue, and Amulree, the responsibility of failure rests partly on the riders, who slowed their engines so much on the wicked bends that they refused to pick up again farther on; or, in the case of variably geared machines, put in the low gear so soon that the engine ran hot before the climb was finished. In reality such failures are an indictment of machines rather than of riders. Remember that the gears were seldom higher than 6½ to 1 on these ascents. Had it been simply a matter of corner work, the trade riders at any rate would have come down after a look at the corner and tried again. Those who failed did not think a second attempt worth making. They knew the engines were unequal to the task, so they pedalled or ran alongside. There is no harm done, so long as we take the lesson to heart. From a hill-climbing point of view, we may say there is already no hill with a rideable surface in Great Britain which an expert on a freshly tuned machine cannot climb, if he is allowed to adjust the gear to the gradient, enjoy a little practice, and choose a dry windless day. We must not stop here. Motor cycles will have attained perfection only when the rank duffer can climb these same hills comfortably in spite of contrary winds and surfaces. These Scottish hill tests have proved that we need engines which can keep cool longer, engines that can pick up better on bad gradients, and good two-speed gears as options. Now that genuine reliability has been attained by nearly every maker, absolute certainty of hill-climbing is the point that most of all demands attention.

The winning Douglas team in the Scottish Trials. Left to right: G. L. Fletcher, W. W. Douglas, and P. Phillips. The machines illustrated are fitted with a two-speed gear specially designed for the trials.



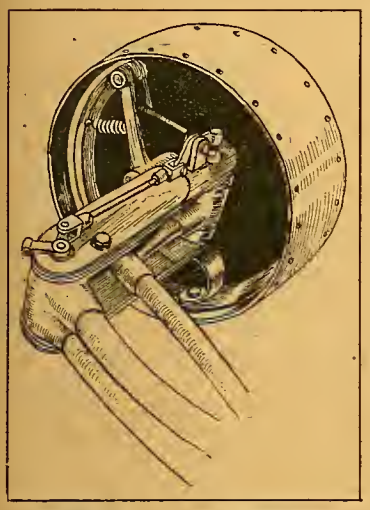
Full reliability marks in the Scottish Trials. Bert Yates (3½ h.p. two-speed Humber) and W. Pratt (3½ two-speed P. and M.), two of the four gold medal winners. The other two were W. W. Douglas (2¾ Douglas) and J. S. Holroyd (1¾ Motosacoche).

From a tourist's aspect the trials were truly delightful. The gorgeous scenery baffles description, and far surpassed anything that I had previously seen in the British Isles. The hotels were good, cheap, and not overcrowded as they usually are in the English trials, and a spirit of jovial goodfellowship reigned among riders and officials in spite of the hard work. I hope that next year a goodly band of our hard-riding English amateurs will enter—they will long look back to it as the finest week they ever had.

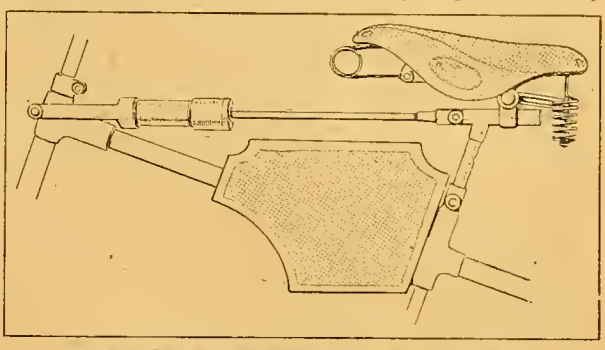
A club prize will be offered in 1911 for the best performance between teams of three riders representing clubs, and we should have fine sport if the prominent clubs send a trio apiece. The thanks and congratulations of the motor cycle world are due to the Edinburgh M.C.C. for organising so strenuous a test. We have plenty of easy ones, and a little work of a more exacting nature will do good.

THE 1910 JAMES MOTOR BICYCLE.

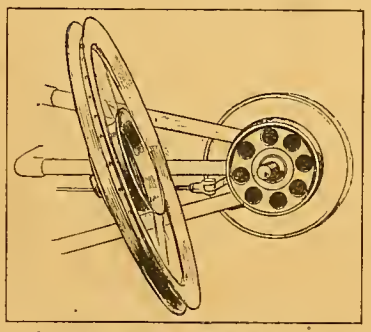
THE designers of the James motor bicycle are to be congratulated on their originality, as there is not a machine on the market which departs more from standard lines than the 3½ h.p. in question. On the occasion of a recent visit to the James Cycle Co.'s works at Birmingham, we were enabled, by the courtesy of Mr. A. D. Arter, to go round the well-equipped factory in which James motor bicycles are constructed. Here two of the latest models were to be seen being made ready for the road, one of which had lately successfully come through the last Quarterly Trials. Not the least interesting point about the machine is the frame, which, even from a casual glance, may be seen to be a striking departure from standard lines. The wheels are mounted on live axles, and are entirely open on one side, so that tyres and tubes can be changed without difficulty. Inside the outer shells of the hub are internal-expanding brakes, of which the front brake is hand-applied and the rear brake worked by means of a pedal. The fitting of a luggage-carrier has prevented the rear wheel being entirely open on one side, as it is necessary for the supports to have two points of suspension, but to remove an air tube it is only necessary to undo one nut, and there is then room to spring aside the carrier stay and pass it through the opening. The engine has a bore and stroke of 86 × 96 mm., and is provided with special staggered radiators, while the main shaft runs on ball bearings. The Bosch high-tension magneto is carried behind the engine, and is, in consequence, protected from mud and wet. It is driven by means of a train of gear wheels enclosed in a casing, but opposite the magneto pinion is a large cap, which may be unscrewed, totally exposing the pinion and allowing the magneto to be timed without disturbing the gear case cover. The saddle is suspended on a spiral buffer spring and an anti-vibratory check spring. The latest addition to the James motor bicycle is a friction clutch, which follows car practice, being of the cone leather-to-metal self-contained type, which is rendered possible by the employment of a live axle. It will be seen, therefore, that the idea throughout has been to employ car practice where possible, and the absence of front forks and the employment of pivot steering, the suspension of the wheels, and the free engine clutch just described, go to confirm this. The machine is full of interesting points, and, in consequence, an ever-increasing number should be seen on the road.



The front wheel hub, internal expanding brake and steering gear.



The spring seating arrangement on the James motor bicycle.



The leather-faced cone clutch on the driving wheel, also showing belt pulley.

CHECKING IN RELIABILITY TRIALS.

By F. H. M.

VARIOUS and numerous appear to be the systems adopted by clubs in order to decide winners in reliability trials. Can any of the methods be called perfect when stops are not taken into account? Even if a large number of checkers are arranged for *en route*, it is quite possible for a competitor to have several short stops and make trivial adjustments, and still arrive at the different checks (including secret checks) on schedule time. He may possibly be awarded a cup or medal, while another competitor, who has not had a single stop, may not (either through bad luck, a bad watch, or bad management—it matters little which, as the trial is presumably a test of machines) have adhered quite so closely to schedule time, and possibly loses the prize.

A method which does take all stops into account is that adopted by the Western District M.C. (London). The system works exceedingly well, and has met with great approval by the members. The committee had experienced all the usual difficulties when finding winners—re-running long events, speed-judging, secret controls, hiding in hedges, checkers' watches differing from competitors' watches, etc. At the beginning of last year the committee was faced with the following question at numerous meetings, until it became quite a joke: "Method of deciding winners in reliability trials?" The subject was discussed and argued vigorously for hours, but no decision could be arrived at, and in despair the matter was finally left to a sub-committee of three to come to some decision. Being two to one, it was thought they would arrive at some settlement of the vexed question. After long consideration, the method now adopted was planned out, and subsequently referred to and approved by the committee.

Checking in Reliability Trials.—

The system is as follows:

1. Competitors ride in pairs, each pair leaving at intervals of two minutes. Each competitor checks his partner, and those following behind must also note stops.

2. Times are taken at the start and on arriving back. A checker is also stationed at the destination, to prevent scorching, any competitor failing to arrive within five minutes either way of his schedule time being deducted 1 mark for each minute. Competitors are started on the return journey one hour after arrival.

3. No stops, other than traffic stops, are allowed outside controls. In long runs an intermediate control may be arranged, where petrol and oil tanks may be replenished. No adjustments allowed in controls.

4. Each competitor is allotted 60 marks, and for each stop of a minute, or part thereof, a mark is deducted, the time being recorded by his partner. Should a competitor be delayed more than 60 minutes he is disqualified, and his partner continues the journey in company with another pair following, or alone if the last pair. The number of minutes occupied during all stops are added to the time each competitor is due at the destination and to arrive back.

5. On the return journey, partners separate about four miles from the finish, one rider being due back one minute after his partner, the schedule time being worked out at twenty miles an hour, plus the hour at the destination. Competitors are thus due to arrive back at regular intervals of one minute.

6. In the event of several making non-stops and losing no marks, the winners are decided in accordance with their arriving back the nearest to their respective schedule time.

No Need for a String of Checkers.

Each competitor has attached to his handle-bar a coloured card worded as follows:

Competitor's name
Machine
Started at
Due back at
Arrived back at
Due.....(destination) at
Arrived.....(destination) at
Leave.....(destination) at

STOPS.

Mins.	Cause of Stops.

The method avoids the necessity of arranging for a large number of checkers; is not arduous or monotonous; eliminates the best machines and riders; and the winners can be ascertained in a few minutes after the termination of the competition. The fly in the ointment is the watch of the timekeeper at the start and finish may stop. This happened once (due, no doubt, to the owner not having wound it up the previous evening), but two watches are synchronised at the start, and in the event of the "official" one stopping the time is taken by the "spare."

In my opinion, the method is ideal, but possibly some of your numerous trials hon. secretary readers may wish to criticise it. At all events, all is calm and peace in the ranks of the Western District M.C. (London).

KENMORE HILL AND THE END-TO-END TRIALS.

IT is common knowledge that the A.C.U. has altered the Scottish portion of the End-to-end Trials route so as to include a hill-climb up the Kenmore side of Amulree Hill. We are in hearty sympathy with the policy of including more severe ascents than figured in the 1906 and 1908 events, but our representative in Scotland is strongly of opinion that the Kenmore climb should be cut out in favour of an easier and less freakish venue. We understand Kenmore has been selected for two reasons: (1) that to use the Sma' Glen side might seem like poaching on the preserves of the Edinburgh M.C.C.; (2) a private member of the A.C.U. reports having climbed the hill on a T.T. Triumph without difficulty. The first reason falls to the ground in view of the fact that the Scottish car trials have used the Sma' Glen side for several years past, and of the openly expressed wish of the Edinburgh clubmen to see how the A.C.U. riders can shape up it. The second reason is unsound, because there is a vast difference between attempts by a 10 stone rider on a stripped 150 lbs. machine, specially tuned, and, say, a 13 stone man on a fully equipped and rather road-worn steed, scaling over 200 lbs. all on, which is about the average weight of a 3½ h.p. roadster loaded with kit and luggage in an End-to-end trial.

If the hill is practically unclimbable, its inclusion in the A.C.U. trial will have the following effects:

(*a*) It will rob men of gold medals which they deserve.

(*b*) It will give a very unfair and unfavourable impression of motor cycling to the general public.

(*c*) It will deter riders from entering these trials.

(*d*) Especially it will discourage amateurs from entering (and the present desire is to see a large amateur entry in all the chief trials).

Now the Kenmore side is not unrideable. Adamson has climbed it several times, and, magnificent steersman and mechanic that he is, he has even taken up a passenger on his carrier to a point well above the fourth of the five bad bends. But the following facts and opinions are of weight:

(*a*) Nobody has ever climbed even the Sma' Glen side in the course of a reliability trial, all clean ascents having been recorded in timed sprints.

(*b*) The Kenmore side is nearly twice as difficult as the Sma' Glen side. According to the contour book, Sma' Glen side averages 1 in 8 as against 1 in 7 for the Kenmore side.

(*c*) The road is so narrow that any competitors who fail will seriously obstruct subsequent attempts, and with an expected entry of at least seventy-five the hill-climb alone may occupy half a day, owing to delays for clearing the road.

(*d*) The opinions of trade riders and others who have seen the hill should carry some weight, and they are almost unanimous that practically no one can climb Kenmore under touring conditions.

In view of these facts and opinions we respectfully invite the A.C.U. to consider whether it would not be in the best interests of its trials to substitute some other Scottish ascent. We should like to press the claims of Glendoe Hill at Fort Augustus, which is a straight and very formidable ascent, admirably adapted for the purpose.

A Remarkable Performance.

INTERVIEW WITH J. S. HOLROYD.

IF any rider had a good excuse for losing all possible marks in the Scottish Trials, it was J. S. Holroyd, who rode the 1¼ h.p. Motosacoche. It was not to be expected that so lilliputian an engine could climb half the hills embodied in so formidable a route, nor could it hope to make up the time lost on hills by fast travelling down the rough mountain passes farther on. Yet the plucky rider with his little machine was one of the only four who lost not a single mark. In one respect the Motosacoche surpassed all the rest. The Braemar-Grantown section was so terribly severe that the only official who was able to force his car over it recommended the judges to award full marks to every competitor who covered it. The judges decided to adopt this recommendation, and lo! it was discovered the same evening that everyone had been late in at Grantown except Holroyd! It is true that a breakdown in the marking of the route was partly to blame, but under the circumstances the Edinburgh M.C.C. awarded him a special medal for his marvellous performance over this section, of which we append a contour, reproduced from the "Contour Road Book of Scotland" (Gall and Inglis).

J. S. Holroyd (1¼ h.p. Motosacoche), the hero of the Scottish Six Days Reliability Trials. He was the only rider of a single-geared machine to obtain full marks.

Meeting Holroyd as he left the examination yard after the finish of the trial, we thought his experiences might be interesting to our readers. This rider weighs about 11 stones in riding kit, and was with the Rover Co. before joining Motosacoche, Ltd., two years ago. He looked perfectly fresh and fit, deeply tanned by the grilling sunshine, and was perfectly ready to discuss his experiences.

"You have a lot of experience in trials, Mr. Holroyd?"

"Well, scarcely so much as most of the trade riders. For years I worked wholly in the shops, but I have driven a Motosacoche through three Quarterly Trials, twice to Edinburgh and back in the M.C.C. trial, and I also gained a gold medal in the A.C.U. Six Days Reliability Trials last year, getting full marks for hill-climbing and condition at the end of the trial, and climbing Dinas Mawddwy and Birdlip without dismounting."

"And how do the Scottish trials compare with the other events?"

Our victim smiled meaningly. "Any other trial ever held was a mere picnic compared with them. Quite apart from the frightful hills we have had to get up, the amount of severe gradient thrown in in the ordinary way has been appalling, and when you are up the hills the surface has been so bad and the corners so sharp and so numerous that it has been the hardest thing in the world to catch up schedule time again."

"How did the Motosacoche fare on the hills?"

"Oh, I got up most of the ordinary hills in good style, mostly without pedalling, but you could not expect 1¼ h.p. to climb places where two-speeded 3½ h.p. machines, ridden by men lighter than myself, were sticking every day. As you saw, I make a rule to get up as far as I comfortably can in the saddle. Then, when I am tired of pedalling, I get off and slack back my jockey pulley a trifle, so that the belt slips a little. Then if I start the engine again it takes up the machine and a bit of me. I walk alongside at three or four miles an hour, and the machine helps me a little. Even thus I got up a good deal faster than some of the others. One or two men have pushed heavy machines for miles; they fell off at the bad corners, and their machines are so heavy they could not get going again."

"That must have been pretty severe on your belt, Mr. Holroyd?"

"Well, look here; these two §in. Whittle belts have brought me through nicely, turn and turn about, and they were not new when I started. A bit glazed, perhaps, but after a good scrape they ought to see me through the rest of this season. Probably I shall use them again in the End-to-end. I shall want a new pulley, though; the outside flange has got a groove worn in it."

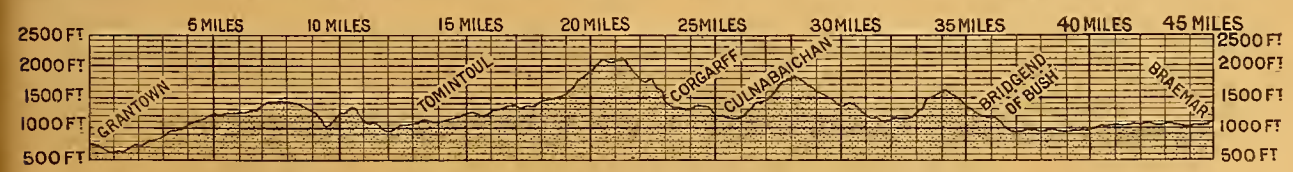
"You cannot have experienced much trouble or delay anyway, seeing you have averaged 20 m.p.h. over 900 miles of the worst roads in Scotland?"

"No, I have come off with a clean sheet in that respect, and, of course, the weather has been all in our favour. If it had been wet and windy, there would not have been any gold medals at all probably. I think I score by having a slow machine. I can pick my track carefully."

"Slow? I have been hearing how you passed that big car of Morrison's along the straight stretch into Blair Atholl."

"Oh, my engine can turn over all right when I put her to it, but, of course, I go steadily over the mountains."

So wishing Mr. Holroyd and his staunch little mount good fortune in the End-to-end, we left him to catch his train to London, taking with him three well-earned prizes—one of the four gold medals awarded for a perfect score, another medal for the best performance by any lightweight, and a third for the absolute best performance over the Grantown-Braemar section. Truly a field day for the Motosacoche!



Contour section of the road between Braemar and Grantown, the severest stretch in the Scottish Trials.

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Cure for Stretching of Leather Belts.

[4820.]—Regarding letter 4797 in *The Motor Cycle* of June 9th in which your correspondent recommends using a large clock spring, we would like to say that the method of using a tempered steel band in this way, also in co-operation with a belt itself, has been patented by us.

JOHN A. MILLER, LTD.

The Storage of Accumulators.

[4821.]—Since the publicity given in *The Motor Cycle* to our hints regarding the care and storage of accumulators we have been inundated with queries as to why we recommend keeping them in a dark place. As no doubt there are a large number of your readers who are interested in this question who have not troubled to write us, we may state—for their particular benefit—that our reason for suggesting a dark place for storage is because continual exposure to the light seems to set up a chemical action which very quickly causes the celluloid cases to lose their transparency, hence our suggestion that they should be stored in a dark place or wrapped up in such a manner as to keep the light away from them.

C. A. VANDERVELL AND CO.

To Ensure Regular Lubrication.

[4822.]—In the issue of June 9th, Mr. E. Rye calls attention to the advantage of drip feed lubrication, and recommends the adoption of a screw regulating valve. As you state in your footnote, this device has already been adopted, and we should like to add *patented*.

This regulating valve, exactly as described in Mr. Rye's letter, is the leading feature of the "Best" drip feed lubricator, Patent No. 15,481, 1909, for which we have the sole patent rights, and of which we are the manufacturers. It is, in fact, the identical pump adopted by the Norton Manufacturing Co. for their Tourist Trophy models, and which is now in use on many motor cycles of various makes.

BEST AND LLOYD, LTD.

Experiences with a Lightweight.

[4823.]—Having ridden over a thousand miles on my two-cylinder Enfield, I should like to give my experience for the benefit of those who require a lightweight motor cycle.

As a medical man, with a practice which averages more than twenty miles a day through the streets of a busy town, I have had ample opportunity for testing the machine. I find it absolutely reliable, quieter than any machine I ever meet, and most economical in petrol consumption. One of its greatest charms is the ease with which it starts. Some days I call at over fifty houses; this, of course, necessitates starting it more than fifty times. I have used it every day, wet or fine, and there has been no suspicion of side-slip. I take it that is due to the low centre of gravity. In short, it is an ideal bicycle for a doctor. Two medical friends of mine have recently purchased one with the same happy results. I am not surprised to hear that the machine is doing so well in the reliability trials. Last week I had a run of 143 miles during the day, had no trouble, and took every hill without pedal assistance. I have no interest in the manufacturers, and I am writing this simply because I feel that I should like to give others who are in the position of myself some weeks ago, when I was hesitating which machine to buy, the benefit of my experience.

M.R.C.S., L.R.C.P.

Opinions of Motor Bicycling Wanted.

[4824.]—I have read "India's" letter under the above heading a few weeks ago, and should like to mention that I have ridden both horse and motor cycle.

The latter I am still riding, and have done so for the last three years. In my opinion the horse is by far the greater "liver stirrer." As to the motor cycle being bad for the spine and nerves—well, I don't see it. In fact, my brother when he has got neuralgia or toothache always goes a ride on his motor cycle, and says it always cures him, and that's not stretching it.

AN ENTHUSIAST.

Hill-climbing.

[4825.]—With regard to Mr. D. R. Greis's enquiry *re* Succombe Hill, I beg to inform him that I climbed this redoubtable hill in 1907—about May, I think. I used a 3½ h.p. Triumph, 82 by 86 mm., with a fixed pulley giving about 4½ to 1 gear, so my 1907 apparently did as well as your correspondent's 1909 engine, although it was at a disadvantage as regards gear and capacity.

I always understood my ascent was the first verified one, though I have heard rumours of others, which I may say I have not been able to confirm. Be that as it may, there is not much doubt to my mind that mine was the first single-cylinder single speed ascent.

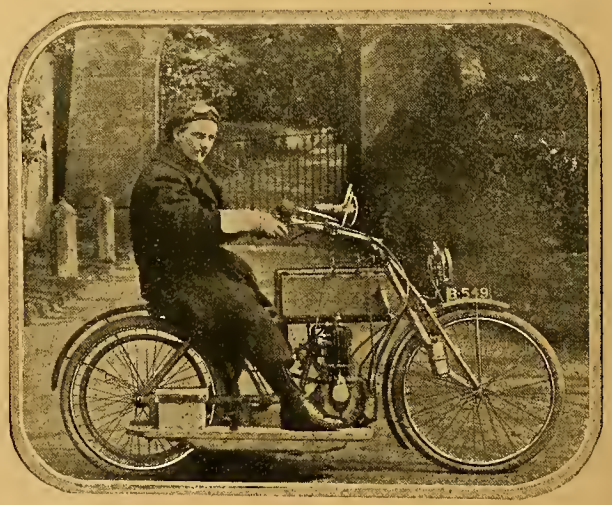
E. M. OLIVER.

Altering Old Pattern Machines.

[4826.]—I have been a reader of your paper for over three years, and would like first of all to express my appreciation and tender my thanks for the great help it has been, more especially when I first started motor cycling.

Some little time ago you illustrated a machine which had been cut down, and which I at once copied. I send you a photograph, which may be of use to some other readers. A point of interest may be the long footboards, which are very comfortable. Shallow boxes are fitted under the footboards, in which I carry tools and spares.

A. C. M. LILLIE.



An altered and improved frame mentioned in A. C. MLillie's letter on this page.

Portable Sheds and County Council Regulations.

[4827.]—Unless the writer of letter 4801 in the issue of the 9th inst. wishes to store petrol in large quantities, this has nothing whatever to do with the case he states. The question of the erection of a building of any character (portable, permanent, or temporary) within the London County area, is governed mainly by the London Buildings Act of 1894, whilst the storage of petrol is regulated by the Petroleum Act of 1871, and orders issued by the Home Secretary. The wording of the former Act is so closely drawn as to include practically all buildings of any nature whatsoever, if erected within 30 feet of any existing building or structure; the only exceptions to this are:

(a.) Not exceeding 5 feet in height, with a maximum of 50 square feet in area, and placed more than 5 feet from any existing building or structure.

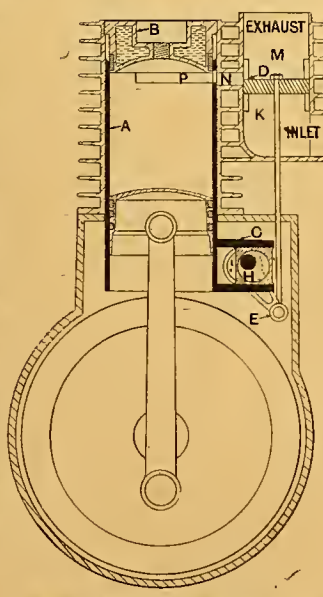
(b.) Contractors' or builders' offices, workshops, or sheds erected to enable them to carry out work of constructions or repairs, and removed as soon as the same is completed.

The provisions of this Act do not concern themselves with the use to which an erection of the kind your correspondent refers to is put, and as he admits it was only 18 feet away from a dwelling house, also that the garden fence is only 26 feet distant from same, he had no other alternative but to comply with the L.C.C.'s request to construct according to their requirements, or remove what was certainly an illegal construction, unless he wished to incur the risk of a summons, followed by a magistrate's order for its removal, with the addition of a fine. The issue cannot be evaded by the addition of wheels making it possible to move the shed from place to place.

The subject appears to be of interest to London motor cyclists. Enquiries which I made from my solicitor beforehand led me to abandon the idea of following your correspondent "Shed's" example. GARAGE.

A Slide Valve Motor Cycle Engine.

[4828.]—I beg to enclose a sketch of a new slide valve engine which I have just patented. I think it is the only design which is suitable for an air-cooled or partly air-cooled engine. In the sketch a water-cooled head is shown, but that might be dispensed with. The essential parts of this new valve gear are the single sleeve A and the small piston D. The sleeve has a cross-head C, by which means the eccentric H moves it up and down. The other eccentric gives motion to the small piston D. The action of the gear is as follows: On the explosion stroke the sleeve A commences to move down until its port P registers with the passage N, then the exhaust gases rush along that passage, and when the main piston moves up on the exhaust stroke, it forces the spent gases before it. During the exhaust stroke, the small piston D also rises, and on the commencement of the induction stroke it closes the passage M and opens the passage K. This allows the new gas to enter the cylinder, until the end of the induction stroke, when the upward movement of the sleeve A cuts off the supply of gas. During the compression stroke the sleeve A still travels upwards until the beginning of the explosion stroke, when it starts to move downwards. Owing to the size of the port P, this design gives the same quick release to the exhaust gases as the double sleeve type, and as there is only one sleeve instead of two, there is not the same chance of overheating. The weight of the moving parts of this gear is nearly fifty per cent. lighter, and it has fifty per cent. less frictional surface than the double sleeve gear. I think this engine should prove very suitable for motor cycles, for there are no loose parts to go wrong or need constant attention, and it should be very silent in working.



Single sleeve valve engine referred to in the accompanying letter.

With regard to the compression, it should be noticed that this is taken entirely by the sleeve A; the small piston D only opens and closes the exhaust and inlet passages. There should be little chance of overheating being experienced by piston D, as it is not exposed to any great heat, for the exhaust gases are nearly cooled before they reach it. J.M.

A Reader's Ideal Motor Cycle.

[4829.]—I consider the ideal motor cycle is not on the market as far as I know, though there are some cycles which have some of the desirable features. It would be according to the following specification:

1. Lightweight, not above 120 lbs.
2. Springs on both wheels, *i.e.*, back and front.
3. Engine to be of "balanced" type—(a) two-cylinder horizontal opposed as in Douglas, (b) three-cylinder vertical, (c) four-cylinder vertical as in T.A.C., and be of about 2½-3 h.p., preferably water-cooled.
4. All main bearings of engine to have automatic pressure pump lubrication (as in car engines).
5. Provided with two or three-speed gear capable of driving machine at, say, 40 m.p.h. on level and taking machine comfortably up hill, say, 1 in 4. Gear to be part of engine or rear hub.
6. Weather-proof transmission chain or shaft drive.
7. Flexible transmission, *i.e.*, some form of spring drive (slipping clutches barred).
8. Free engine clutch (governed engine).
9. Mud-proof. Persons riding even on fearful roads should be spotless. Ditto machine.
10. Accessibility of wheels and tyres, four nuts at most to take out wheel.
11. Pedals to be fitted for engine starting purposes.
12. Magneto ignition, etc.

The cycle which approaches this is the T.A.C., but I do not consider it because it is certainly not a lightweight, nor do I consider it holds out claims 10 and 11, or claim 4. I may be mistaken, of course. The Douglas seems to comply with 1 and 3. I hope this letter will raise an interesting discussion. P. ERFECT.

Delay in Execution of Orders.

[4830.]—I endorse recent letters on the above subject. I ordered a twin machine of well-known make at the Manchester Show, and am assured every fortnight by the makers that the machine is ready for delivery, but the two-speed gear, which is made by a different firm, cannot be obtained. Only the other morning I received another letter. The gear makers cannot give any definite date when the gear can be delivered. Really, I think this is about the limit, as I have twice had to put off a tour, and now it looks as if I shall miss half the summer.

FED UP.

SUMMARY OF CORRESPONDENCE.

A. Turpin (Sydenham) would be glad to hear from the motor cyclist who helped him on Keston Common on the 5th inst., between 5 and 7 p.m.

"E.W.W." (Coventry) would be glad if manufacturers (preferably British) of engines up to 2 h.p. suitable for lightweight motor bicycles, would send him lists.

EXPERIENCES WANTED.

"C.F." (Wellingborough) would be glad of readers' experiences with the Zenith Gradua 3½ h.p. J.A.P., particularly with regard to gear.

"L.L." (Harringay) would be glad of owners' experiences of the 3½ h.p. Lincoln Elk as to reliability of engine, and its suitability for passenger work.

"Nemo" would be glad of readers' experiences of a coupler for a pedal cycle attached to a lightweight motor cycle.

"B.H. 736" would be glad of readers' opinions of the 8 h.p. J.A.P. engine used with a sidecar, particularly regarding petrol consumption and wear on tyres.

Unsatisfactory Belt Rim Brakes.

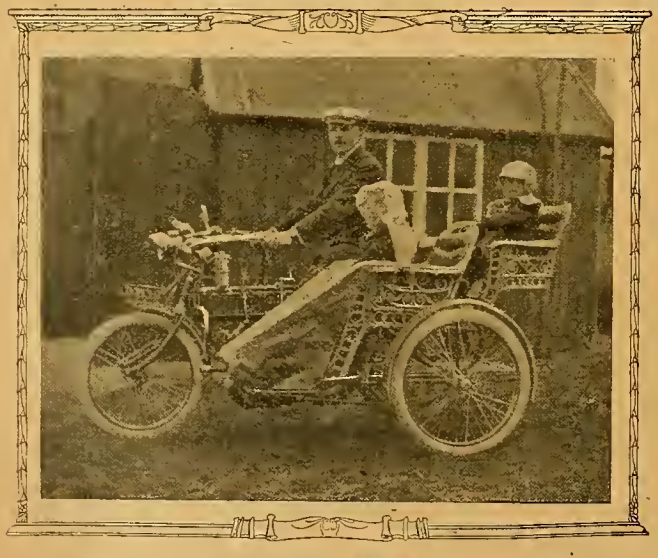
From time to time I hear of certain riders who find the standard belt rim shoe brake inefficient. As this has never been my experience of it I have been puzzled, but of late I have tested two machines implicated, and traced the cause. A common cause with new machines is the painting of the belt rim and the brake pad not fitting the contour of the rim, which destroys the frictional grip. A second cause is insufficient leverage, and this occasionally occurs with machines turned out by inexperienced makers.

A Good Magneto Drive.

I have long advocated the placing of the magneto on a bracket behind the cylinder, but admit the difficulty that it is awkward to set it so high that the contact breaker clears the sag of the belt. Machines have been sold this year with their details so poorly arranged that the belt wears away some projection on the magneto. Hence I was glad to notice in the Isle of Man that the makers of the Moveo machines employed a bevel drive and long shaft for the magneto, enabling it to be carried well out of harm's way, and securing some reduction in weight and increase of fuel capacity as compared with the tank position. This appealed to me as about the best arrangement of the magneto I have seen up to date; though possibly rather heavy for a racing machine it is, if silent, ideal for a tourist mount.

Stub Air Levers.

I notice that several designers, having evolved carburetters which are partially automatic, employ an air lever only an inch or two in length, mounted on the carburetter itself. I submit with all respect that the design is radically wrong. It may work very well in ordinary riding, but its weakness is apparent on all twisty and precipitous hills, not to speak of traffic work. The rider must stoop down, let go one bar, and more or less take his eyes off the road at a moment when such proceedings are difficult or impossible; and several riders tell me they find machines of this type very inconvenient on abnormal hills—the surplus air cannot be shut off smartly enough in rounding a V bend, and the engine does not pick up smartly enough. It is a simple matter to convert such devices to handle-bar control.



"WHEN *IS* MOTHER COMING."

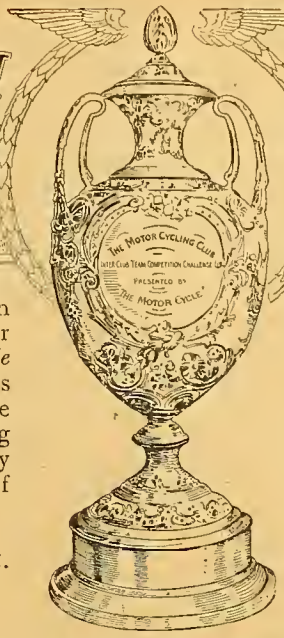
Handle-bar Control of the Oil Pump.

At the close of the T.T. Race I heard one competitor remark that whatever fittings he dispensed with in next year's race he meant somehow or other to rig up handle-bar control of his lubrication! I sympathised with him warmly, for I saw several riders swerve all over the road after removing a hand to make a lightning dab at the pump piston, while those who used thick oil, or had also to operate a tap, were in even worse plight. I doubt if his demand represents a touring need, for in these days of sloped pumps and engines willing to run on thin water-cooled oils, the tourist's lubrication difficulties are limited to efforts of memory or judgment. But for racing we shall certainly have to choose between handle-bar control of the oil (which cannot easily be neat and efficient), or, alternatively, some type of automatic feed, such as figured on several machines in this year's race. The J.A.P. oiler has a long and honourable reputation, and may fill the bill, but I have not heard many riders enthusing about self-acting pumps. Why, I do not know; most cars oil themselves silently and unobtrusively nowadays, and I do not see why a motor cycle should not do ditto. What is wrong, for instance, with an air pump working off the engine and forcing oil under pressure through a needle valve? It absorbs practically no power, cannot foul up, and is far safer than gravity, as it can overcome any probable resistance.

Crank Pins on Racing Machines.

The owner of a T.T. type machine is generally tolerably expert, and I should recommend such to take a look at their crank pins every now and then, especially when a well worked engine is being prepared for a long holiday tour or other important occasion. A species of crystallisation seems to concentrate on the crank pin of these terrifically fast engines, whether their colossal rate of revolution or the knocking and pre-ignition to which the most careful rider must occasionally subject them is responsible I know not. Suddenly without any long warning the engine will commence to knock apart from reasonable provocation, and in a mile or two the crank pin will be found torn in half. At any rate, during the present year the crank pin seems to be the vulnerable point of these racing engines, and when a machine is getting weatherbeaten, trouble may be saved by the examination I recommend.

M.C.C. TEAM TRIAL FOR THE MOTOR CYCLE CHALLENGE CUP



BEAUTIFUL weather favoured the sixth contest organised by the Motor Cycling Club for *The Motor Cycle* Fifty-guinea Challenge Cup. There was again a record number of starters in the competition, proving the ever-increasing interest in this well-conducted trial. It may be of service here to recall the results of previous contests:

1904.—Winners, Coventry M.C.C.
1905.—Competition not held. M.C.C. walked over.
1906.—M.C.C.
1907.—Coventry M.C.
1908.—Coventry M.C. won old trophy outright.
1909.—M.C.C.
1910.—Coventry and Warwickshire M.C.

It will be seen that the M.C.C. and Coventry Club, who have between them won the trophy on every occasion, now hold one share in the new trophy. The team trial is looked upon as the club championship, and it must have been gratifying to the trial hon. secretary, Mr. J. Van Hooydonk, to include the names of eighteen teams on the programme.

The Motor Cycling Club, although not always favoured with fine weather for its competitions, has been singularly fortunate in regard to the Team Competition for *The Motor Cycle* Challenge Cup, as it has not experienced bad weather on any one of its six competitions. Saturday last was a particularly fine day, and the country around Daventry was looking its best. Some of the M.C.C. officials and members of the team representing the organising club arrived in Daventry on Friday evening, as did the Manchester team; part of the Sheffield team stayed at Leicester overnight, while other more hardy members started from Sheffield late on Friday, arriving in Daventry at 11 a.m. on Saturday. The Wheatsheaf Hotel was the headquarters, and there we found most of the officials and competitors at noon, the former busily engaged in serving out numbers and giving final instructions—no light task, as the teams numbered eighteen, and, as each team had six members, the total number of competitors reached 108.

The course was the same as last year, starting from a point one and a half miles from Daventry on the Banbury Road. Two miles from the start the steepest hill on the course is encountered, viz., Badby Hill, which proved too much for several of the riders. Skirting Charwelton, where a right-angled corner was taken, the course was through Preston Capes and Little Preston (where there was another long and gradual rise), Maidford, Brakesley, Greens Norton, a climb out of the village leading to the main London-Holyhead road, which was followed to Daventry and the start. This course measures twenty-five miles, and was covered four times.

At the start, the riders were marshalled in pairs, cards bearing numbers and letters being pegged along the grass to indicate the positions they were to occupy. The competition was advertised to commence at 1 o'clock, and at 1.4 p.m. the first man was timed away, the remainder following at half-minute intervals. The first member of each team from A to T was sent off first, then the second, and so on; in this manner each team was spread all over the course. Rules 6 and 7 governed the competition, and are as follows:

6.—The number of miles, up to 100, accomplished by each rider of each team without stoppage other than stoppages due to the exigencies of traffic, will be added together, and the team scoring the highest mileage will be the winning team except that in the case of a tie the determining factor shall be regularity of running that is to say, the team whose members collectively run for each circuit closest to 1 hour 25 minutes, the intermediate time between the limits of 1 hour 20 minutes (fastest allowed) and 1 hour 30 minutes (slowest allowed), will then be the winning team.

7.—A period of not less than 1 hour 20 minutes, or more than 1 hour 30 minutes, must be occupied over each section of twenty-five miles; transgression of this rule over any section will disqualify the rider from scoring on that particular section.

The Leicestershire team attached large labels to the sides of the tanks bearing the name of their

NOT THE PRIZE DISTRIBUTION!

Scene in the yard of the Wheatsheaf Hotel, Daventry, prior to the start. Mrs. F. J. Jenkins handing a number card to one of the competitors. The chief marshal, F. J. Jenkins, is seated at the table.

M.C.C. Team Trial.—

R. H. Head (left) starting the competitors. F. T. Bidlake (right) timekeeper. The rider is setting the times of his handle-bar watch to coincide with the timekeeper's. The line of competitors extended for nearly a quarter of a mile.

club, the Birmingham men wore sun bonnets, and the Yarmouth contingent carried imitation bloaters as mascots, which also assisted to denote their locality. The Derby and District M.C.C. came to the post with large placards on their backs, which were not approved by the officials and were removed. We are requested to point out that the competition, although a sporting event, should be treated seriously, and placards of the kind referred to will be discouraged in the future.

There were very few restarts required. W. A. Matthews (Oxford) broke a pedal pin. F. Mussell (Herts) dropped the stand, and H. G. Cove (N.W.L.) had not opened the throttle wide enough to start on free engine. These three were allowed to return and start again.

There was little excitement in the first round, although several dropped out or were disqualified for infringement of the regulations. W. Pratt's sidecar tyre punctured, and his passenger adroitly climbed on to the carrier, and the combination was driven two rounds without the passenger seated in the sidecar. Pratt was only allowed to score five marks, as the passenger, contrary to rules, left his seat at the fifth mile. The Yarmouth sidecar was hung up at Badby Hill on the first round, and W. T. Munro (Manchester) burst the back tyre at the twelfth mile. W. Woodward (Islington) stopped at Greens Norton with a choked carburetter, A. Tarr (Sheffield), G. Peppercorn (Essex), and H. Reed (Manchester) punctured; Mrs. Cooke (Herts) had ignition trouble at Weedon. At the end of the second lap —half distance—six clubs, viz., Birmingham, Bristol, Coventry, Motor Cycling Club, Northampton, and Sutton Coldfield, had complete teams still in the running for the cup.

In the third round W. Cooper (N.W.L.) had thoughtfully ordered tea to be provided at Bolt's Farm, where those who wished to avail themselves of his foresight were permitted to snatch a hasty refresher. A good many thought *The Motor Cycle* had repeated its welcome provision in the A.C.U. Quarterly Trials, but this time the credit belongs to Mr. Cooper.

At the completion of the third lap four teams were in the running, viz., Coventry, M.C.C., Northampton, and Sutton Coldfield. Bristol had made a non-stop, but Eli Clark was 40s. too early in the first round, and therefore Bristol's chances were now somewhat remote, and the winner lay among the four above-mentioned teams.

When all the men running had finished the fourth round it was known that E. B. Dickson (M.C.C.) had fallen out for want of petrol at the eighty-eighth mile, and J. St. John (Sutton Coldfield) had stopped two miles from the finish.

W. Pratt (3½ P. and M. and sidecar) suffered a puncture in the sidecar tyre at the fifth mile. His passenger climbed on to the rear carrier, and the combination was driven fifty miles when the officials notified Pratt that he was disqualified, as passengers are not allowed to leave the sidecar seat.

M.C.C. Team Trial.—

This left Coventry and Northampton equal on mileage, and on the results being worked out the Coventry team won by a margin of 7m. 27s. gross errors in punctuality. Below we give the score of each team and their order of merit, also the individual errors in punctuality of the members of the winning team and the runners up.

1st.—COVENTRY AND WARWICKSHIRE M.C.

Rider and Machine.	Mks.	Errors in Punctuality. 1st round	2nd round	3rd round	4th round	Total
		m. s.	m. s.	m. s.	s.	m. s.
W. Williamson (3½ Rex) ..	100	1 6	10	4	55	2 15
G. E. Roberts (3½ Rex) ...	100	1 48	7	1 0	34	3 29
J. Marshall (3½ Triumph)	100	16	9	10	23	58
G. E. Stanley (3½ Premier)	100	21	1 31	19	10	2 11
G. Smith (3½ Rex)	100	32	17	23	18	1 30
H. Williamson (5 Rex and Sidecar)	100	1 55	17	1 24	8	3 44

Total marks 600. Total errors 14m. 17s.

2nd.—NORTHAMPTONSHIRE M.C.C.

Rider and Machine.	Mks.	Errors in Punctuality. 1st round	2nd round	3rd round	4th round	Total
		m. s.	m. s.	m. s.	m. s.	m. s.
W. Duke (3½ Triumph) ..	100	13	2 5	1 32	2 47	6 37
A. E. Catt (3½ Triumph) ..	100	2 17	1 50	41	45	4 33
A. Webster (2½ Hobart) ..	100	1 3	27	8	18	1 58
A. Osborne (3½ Triumph)	100	18	57	21	58	2 54
W. Lees (3½ Triumph) ...	100	20	41	21	2	1 24
W. Barratt (5 Rex and Sidecar)	100	1 42	18	45	35	3 20

Total marks 600 Total errors 21m. 44s.

3rd.—SUTTON COLDFIELD A.C.

P. Mosedale (3½ Centaur)	100	J. St. John (3½ Centaur)	98
H. C. Newman (3½ Ivy)	100	W. Mist (5 Mist and sidecar)	100
H. Smith (3½ Triumph)	100		
C. S. Perryman (3½ Ariel)	100		598

4th.—MOTOR CYCLING CLUB.

R. M. Brice (3½ Brown)	100	W. Chater-Lea (5 Chater-Lea and sidecar)	100
L. A. Baddeley (4 Yelledab)	100		
H. B. Karslake (3 Dreadnought) ...	100		
S. G. Frost (4 Minerva)	100		
E. B. Dickson (5 Indian)	88½		588½

5th.—BRISTOL B. AND M.C.

E. Clark (2¾ Douglas)	75*	P. Grout (2¾ Douglas)	100
W. W. Douglas (2¾ Douglas)	100	F. Bevan (5 Rex and sidecar)	100
E. Kickham (2¾ Douglas)	100		575
F. C. Wasley (2¾ Douglas)	100		

*Non-stop. Too early first round lost 25 marks.

6th.—BIRMINGHAM M.C.C.

R. W. Duke (3½ Triumph)	100	F. H. Southam (3½ Triumph)	75
S. K. Jones (3½ L.M.C.)	100	W. H. Eggington (3½ Triumph and sidecar)	100
Reg. Samson (3½ Reg. Samson)	66		
J. Slaughter (3½ Ariel) ...	100		541

7th.—OXFORD M.C.C.

J. Aldworth (3½ Kerry-Abingdon)	90	J. F. Salter (3½ Triumph)	100
G. F. Cooper (5 Vindec)	100	R. A. Bishop (3½ Bradbury and sidecar) ...	30
H. G. Hill (3½ Bradbury)	100		
W. A. Matthews (3½ Triumph)	100		520

8th.—SHEFFIELD AND HALLAMSHIRE M.C.C.

T. Durrant (3½ Durrant-J.A.P.)	100	W. Hill (3½ Triumph) ...	100
F. Dover (3½ Triumph)	100	A. Tarr (5 Rex and sidecar)	16
J. Haslam (2¾ Douglas)	100		
S. Lawer (3½ Premier) ...	100		516

9th.—ISLINGTON C. AND U. M.C.

W. Price (3½ Rex) ...	100	W. Woodward (5 Rex and sidecar)	12
H. E. Davison (3½ Rex)	100		
C. Wilson (3½ Rex) ...	100		
H. Compton (3½ Rex)...	100		512
J. Campbell (3½ Rex) ..	100		

10th.—NORTH-WEST LONDON M.C.C.

H. J. Pooley (3½ Premier)	100	H. G. Cove (5 Matchless)	88½
E. J. Westacott (3½ Triumph)	100	E. W. Ashworth (5 V.S. and sidecar) ...	11
G. H. Hollis (3½ Triumph)	100		
A. C. Robbins (3½ Humber)	100		499½

11th.—ESSEX M.C.

A. B. Howard (3½ Triumph)	100	B. A. Hill (3½ Kerry-Abingdon)	100
G. Sweet (3½ Triumph)	100	W. Garrad (5 V.S. and sidecar)	70
G. Peppercorn (3½ Triumph)	16		
L. W. Bellinger (5 Indian)	100		486

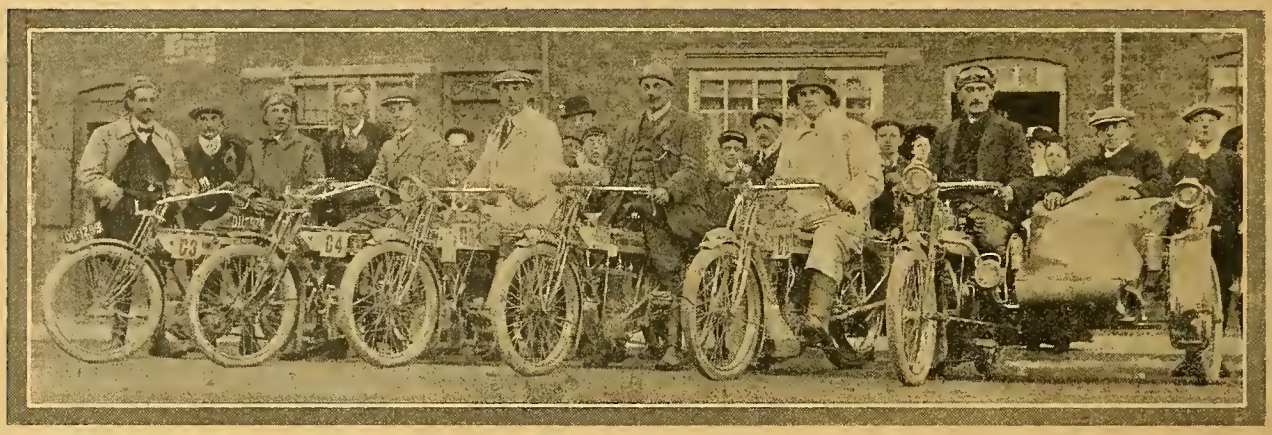
12th.—NOTTINGHAM AND DISTRICT M.C.C.

J. King (4 F.N.) ...	26½	J. Richards (3½ Brough)	100
W. Reilly (3½ Triumph)	100	G. Brough (5-6 Brough and sidecar)	52
C. R. Smith (3½ C.C.R., Smith)	100		
C. H. Sewell (3½ Triumph)	100		478½

Two passenger combinations in the Northamptonshire lanes which looked their very best on Saturday last.

M.C.C. Team Trial-

WINNERS OF "THE MOTOR CYCLE" CUP—THE COVENTRY AND WARWICKSHIRE M.C. TEAM, ALL ON 1910 MODELS.



J. Marshall (3½ Triumph). G. E. Stanley (3½ Premier). G. E. Roberts. (3½ Rex). W. Williamson (3½ Rex). Geoffrey Smith (3½ Rex). H. Williamson (5 Rex and Sidecar).

13TH.—LEICESTER AND DISTRICT M.C.C.

Dr. C. B. Moss Blundell (3½ Triumph)	100	E. Laurance (3½ Bradbury)	100
E. J. Fowler (5 Indian)	45	J. Finlay (3½ P. and M. and sidecar)	27
T. Needham (4 Clyde)	100		472
F. C. Poecher (3½ Triumph)	100		

14TH.—GREAT YARMOUTH AND DISTRICT M.C.C.

A. Wyatt (3½ Ariel) ...	100	H. Lack (3½ Triumph)	100
F. C. North (3½ Ariel)	100	F. Worts (4½ F.N. and sidecar)	2
S. G. Allen (3½ Triumph)	55		457
C. B. Duberley (3½ Ariel)	100		

15TH.—NORWICH AND DISTRICT M.C.C.

A. A. Everard (3½ Triumph)	100	E. Cleary (Bradbury)	100
A. W. Lincoln (2¼ F.N.)	74	J. Boddy (5-6 Bat and sidecar)	83
H. E. Duge (3½ Triumph)	40		442
H. Chapman (2¾ N.S.U.)	45		

16TH.—DERBY AND DISTRICT M.C.C.

H. Baker (3½ Triumph)	100	W. Mindon (3½ Rex)...	27
A. Witham (3½ Rex)...	100	A. Ainsworth (5 Peugeot and sidecar	50
F. G. Ford (3½ Triumph)	40		417
V. Clarke (3½ Bradbury)	100		

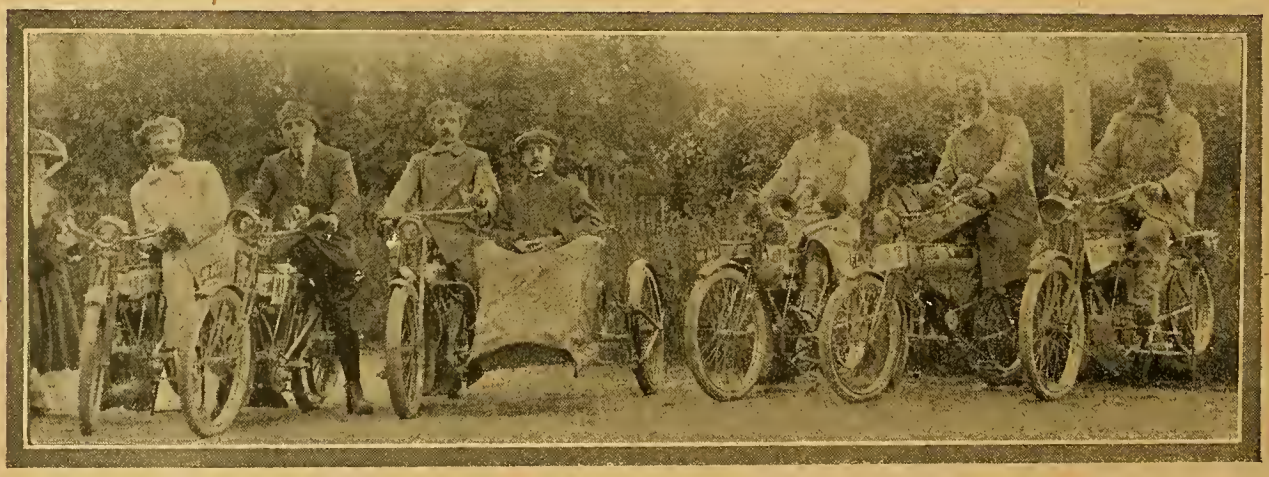
17TH.—MANCHESTER M.C.

H. L. Cunliffe (3½ Rex)	100	J. P. Scott (3½ Rex and sidecar)	26
W. T. Munro (3½ Rex)	12		360
H. Reed (3½ Dot) ...	22		
F. Sirett (3½ N.S.U..)...	100		
A. J. Moorhouse (5 Indian)	100		

18TH.—HERTS COUNTY A.C. (M.C. Section).

C. C. Cooke (3½ Triumph)	100	Mrs. C. C. Cooke (3½ Triumph)	21
E. A. Colliver (3½ Triumph)	100	F. Mussell (3½ Rex) ...	100
A. H. Colliver (3½ Triumph)	8	W. Pratt (3½ P. and M. and sidecar) ...	5
			334

THE NORTHAMPTONSHIRE M.C.C. TEAM, WHO EXPERIENCED HARD LINES IN LOSING ON TIME ONLY

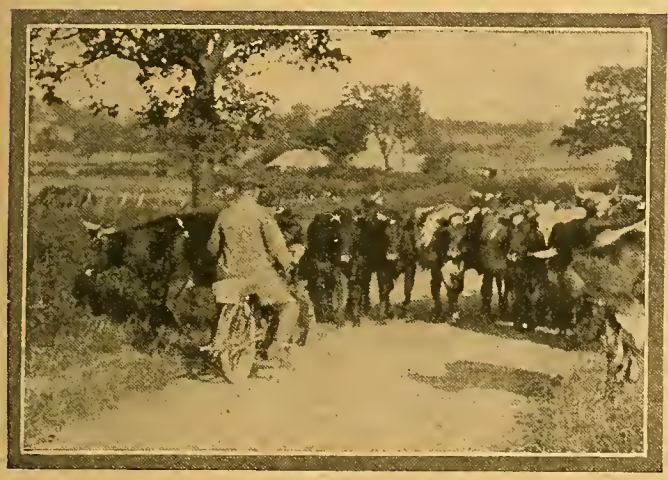


A. Osborne (1908 Triumph). W. Duke (1910 Triumph). W. Barratt (1910 Rex and Sidecar). W. Lees (1910 Triumph). A. Webster (1910 Hobart). A. E. Catt (1910 Triumph).

Team Trial Trifles.

It has been said that the winning of *The Motor Cycle* cup is wholly a matter of luck. Whilst we do not dispute the fact that luck enters largely into the question, systematic preparation is the chief factor of success. The theory of luck is immediately dispelled when we point out that Coventry have lifted the trophy on no less than four occasions, the M.C.C. answering for the other two wins in the six years the trophy has been competed for.

We do not think we shall be disclosing any secret if we mention the methods of the most successful team in preparing for this trial. First of all, the most experienced riders are selected by the committee, the latter eschewing the elimination test favoured by most clubs. Each competitor thoroughly overhauls his machine the week before the start, and cleans and adjusts every vital part with the greatest care, fits *new* tyres and nail catchers. Security bolts are also fitted, so that in case of a puncture the competitor may continue riding on the rim without fear of the cover coming off. It is also a proviso that members of the team fit pedalling gear, so that in case of belt stretch or misfiring assistance can be given on hills. Lastly, chain drive is insisted upon for the passenger machine. Last year, small petrol tins were carried round the riders' necks (no replenishments being allowed during the 100 miles), but this year larger tanks were used in most cases to relieve the riders of anxiety. It may be added that all the Coventry team rode 1910 pattern motor cycles. All this preparation, it may be considered, should not be necessary with latest models, but a team out to win leaves nothing to chance.



There were several droves of cattle on the course, which hampered the competitors. R. M. Brice (3½ Brown) is seen held up near Preston Capes.

The total number of riders to make non-stop runs was 76—a percentage of 70.3 successful competitors.

The Sutton Coldfield A.C. score of 598 was remarkably good, but if they had gained the total marks they would not have won the cup, as their total error was 25m. 26s.

As is usual in this competition, tyre troubles were the chief cause of retirements, nor was this a great surprise, for quite a number of riders started with covers which had already seen many hundred miles of service. On the very first round, we passed six riders repairing air tubes by the roadside.

Everyone will sympathise with the Northamptonshire and Bristol teams. It is no mean accomplishment for every rider to complete the course without a dismount, and the performance is certainly deserving of some reward. The Bristol team lost its chance in this way: On the first round one of the men timed himself by hanging on to another competitor, and somehow or other he entirely misjudged the speed, and finished the first lap forty seconds too early. The Northants team lost because its timing was considerably more inaccurate than the Coventry team.

Never was the interest so great as in this year's event. The whole of the eighteen teams entered duly started, and the hundreds of spectators on the course were rewarded by seeing an interesting contest and a constant string of riders encircling the course.

Reliability is truly on the ascendency. Previous to this year only one team—to wit, the M.C.C.—has completed the course intact. This year three teams repeated the performance, and had it not been for shortage of petrol on the last lap the number would have been augmented by the addition of the Sutton Coldfield A.C. and the M.C.C.

If Dickson had finished between the limits of time his difference could not have exceeded five minutes for the fourth lap, when the M.C.C. score would have been 13m. 24s.—a winning figure. The score of 19s. by S. G. Frost is the closest in the trial.

LEEDS TO LONDON AND BACK.

A dense crowd of people assembled in the Leeds City Square on Saturday evening last to give a send off to the Leeds M.C.C. riders who were riding to London and back. It was a gloriously warm night, and at 9.45 prompt the first two riders threaded their way with difficulty through the crowd, which, however, was handled splendidly by an efficient police force.

T. Bullus (3½ P. and M) and J. R. Kelly 2¾ Moto-Rêve) led off the procession. Mr. Bullus is a Bradford rider, and won the trophy last year. Other competitors followed at intervals of one minute, as follow: 3rd and 4th, Wilkinson and Scott; 5th and 6th, Murphy and Langton; 7th and 8th, Heaton and Brook; 9th and 10th, Cockroft and Speke; 11th and 12th, Ellis and Ramsden; 13th and 14th, Pease and Smith; 15th and 16th, Stevens and Smith; 17th, Graham; 18th, non-starter; 19th and 20th, Wheater and Money; 21st and 22nd, Kitchen and Braithwaite; 23rd and 24th, Burnell and Horner; 25th, Mortimer.

Out of twenty-five entries twenty-four started, the only absentee being F. Greenwood, who has previously won the trophy several times.

The controls were at Grantham, Biggleswade, and Highgate, and at the first two places meals had been arranged for on the outward and return journeys. Secret checks were also instituted throughout the entire run by motor cars kindly supplied by Mr. Rowland Winn (president of the club), who accompanied the competitors with his wife), and also the Bridge Garage, Leeds.

The speed to be maintained was slightly under twenty miles per hour, and the riders had to adhere to schedule time throughout. The run finished the following evening at 8.40, at John-o'-Gaunt's Hotel, four miles from Leeds.

The List of Survivors.

The following completed the run inside schedule time, and qualified for the various awards: Bullus (3½ P. and M.), Kelly (2¾ Moto-Rêve), Wilkinson (3½ Triumph), Scott (Triumph), Murphy (5 Rex and sidecar), Langton (3½ Triumph), Heaton (5 N.S.U.), Brook (3½ S.P.K.), Cockcroft (3½ Triumph and sidecar), Speke (7 S. and R.), Ellis (3½ Calthorpe), Ramsden (7 S. and R.), Money (3½ Triumph), Graham (3½ Triumph and sidecar), Wheater (3½ Humber), Kitchin (3½ Scott), Braithwaite (3½ Triumph), and Burnell (3½ Humber). The actual prize-winners will be known in a few days. Bullus (last year's winner) had hard luck in experiencing two punctures within a few miles of the finishing point, after running very close to schedule right through the run. These two delays put him out of the running for first place. There were twenty-four starters, and of these eighteen finished within the allowed time—a creditable record considering the arduous nature of the contest.

Several Bradford riders took part. Manchester and Keighley also sent a team of riders, and altogether the run was a great success, mainly owing to the efforts of the Brothers Langton, Messrs. F. C. Bagshawe (the trials hon. sec.), and J. R. Kelly.

CURRENT CHAT

TIME TO LIGHT LAMPS

June 23	...(GREENWICH)	9.19 p.m.
„ 25	... ...	9.19 „
„ 27	... ...	9.19 „
„ 29	... ...	9.18 „

The Battle of the Cylinders.

Yesterday's T.T. Race at Brooklands promised to be a real battle of the cylinders, the two types being nearly equally represented.

Police Activity.

The police are becoming unusually active in Cromer, and several summonses have recently been issued for driving to the common danger.

Rejoining the Fold.

One of the oldest and most important firms in the cycle and motor industry, which some four or five years ago made an excellent motor cycle, and to the general regret relinquished its manufacture, is, we hear, experimenting with a new model. This machine is fitted with a slide valve engine made under Knight-Daimler patents, and may be exhibited at Olympia this year.

A Real Multi-cylinder Engine.

The latest production from the Gnome factory is a fourteen-cylinder air-cooled rotary engine. It is in reality two of the seven-cylinder engines we recently illustrated and described, built on to one common centre. The simplicity of a motor cycle engine must at once appeal to anyone who takes the trouble to examine the new Gnome production.

SPECIAL FEATURES

M.C.C. TEAM TRIAL.

THE SCOTTISH TRIALS: A RETROSPECT.

TESTS ON ROAD AND TRACK.

A Ride with an Object.

H. Savory (Rugeley) writes: "Some of your readers may like an excuse for a run through the beautiful country round Abbots Bromley, where on July 7th the ancient horn dance will be performed."

Saturday's Open Hill-climb in Yorkshire.

Some prominent motor cyclists have entered for the Bradford M.C.C. open hill-climb at Cockshoot Lane, near Skipton, on Saturday, including a number of Tourist Trophy competitors, and a successful event is assured. It is expected that Jack Scriven will bestride a new 7 h.p. twin-cylinder m.o.i.v. Rex in an endeavour to lift the Eric S. Myers Trophy. The cylinders of this new engine measure 84½ by 89 mm.; the capacity is 993 c.c. In general design, the 7 h.p. engine is a larger replica of the 4 h.p. model.

The Prizes for Amateurs.

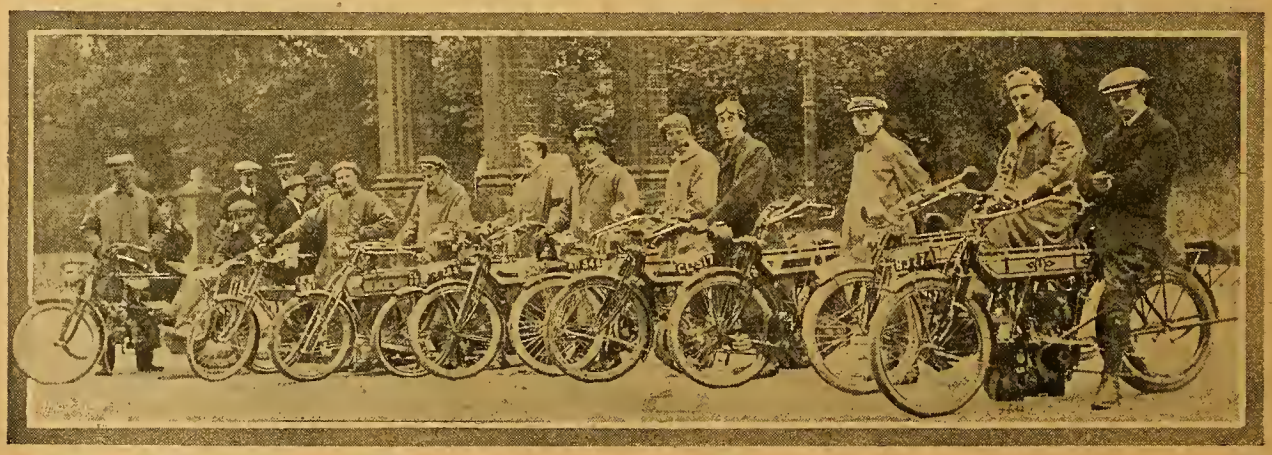
In connection with the above hill-climb, it was stated in the particulars circulated that prizes for amateurs would be announced later. We now hear that the Palmer Tyre, Ltd., have offered a pair of their non-skid tyres as a special amateur prize, and Jos. Lucas, Ltd., a motor cycle lamp. Still more amateur awards are expected.

Long Distance Competitions.

Long distance reliability trials are exceedingly popular with Yorkshire clubs. Last week-end the Bradford M.C.C. held a twenty-four hour run to London and back for the Briggs Trophy, and the Leeds M.C.C. also successfully carried out a reliability run to London and back for a fifty-guinea trophy. In previous years these two competitions have been run jointly, but owing to the Leeds Club having thrown in its lot with the Northern League, the Bradford Club (which remains loyal to the A.C.U.) is debarred from associating with its neighbour in these competitions. It may be mentioned that invitations were issued by the Leeds M.C.C. to the twenty-one clubs comprising the Northern League of Motor Cyclists to send a team of three riders each.

Kenmore Hill-climb Abandoned.

A meeting of the A.C.U. Competitions Sub-committee was held late last week, and it was decided, in view of the reports received from competitors in the Scottish trials and representations made by officials, not to send the competitors in the End-to-end trial up the Kenmore side of Amulree Hill. This decision was arrived at after the article on page 576 of this issue had gone to press, and we commend the Auto Cycle Union on its promptitude in deciding to adopt the course suggested by our representative and others who went through the Scottish trials, and appreciated the severity of a climb, which was even omitted from the Scottish car trials. Perhaps the committee will now adopt our suggestion with regard to Glendoe Hill at Fort Augustus, which would provide a very perfect test for the machines without the personal skill of the rider entering too much into the question. Glendoe Hill is a straight but very steep ascent, and all machines would have to be in good tune to climb it without a falter.



On the warpath of *The Motor Cycle* Cup. Great Yarmouth and District M.C.C. members about to start on their long journey to Daventry to compete in the M.C.C. Team Trials. If ever Coventry or the M.C.C. should make a mistake, surely everyone will wish the Yarmouth riders success for their persistency.

A.C.U. End-to-end Trial.

Entries for the Land's End to John-o'-Groat's reliability trial, which starts on Monday week, have now reached a total of 47. In addition to the names already published, the following have been added to the list: C. J. Fox (7-8 h.p. Bat), Humber, Ltd. (two 3½ h.p. Humbers), S. W. Carty (3½ h.p. N.S.U.), G. Brough (3½ h.p. Brough), Enfield Cycle Co. (2¾ h.p. Enfield), W. F. Newsome (3½ h.p. Triumph), W. Creyton (3½ h.p. Triumph), G. L. Fletcher (2¾ h.p. Douglas), J. Baker (3½ h.p. Triumph), C. Williams (3½ h.p. Triumph), A. Stubbs (3½ h.p. Dot), Rev. Basil Aston (3½ h.p. Triumph), A. J. Stevens (Wolf), J. Stevens (Wolf), W. A. Sale (3½ h.p. Rex), Harold Williamson (5 h.p. Rex), W. A. Jacobs (3½ h.p. Rex), J. P. le Grand (5 Rex), and J. R. Woodward (3½ h.p. No. 2 Speed King Rex. Next week we hope to publish details of the route.

The New End-to-end Sidecar Record.

Some people are always ready to belittle another man's performance. We hear that in a certain quarter in the South-west, Hugh Gibson's sidecar record is doubted. We may state that prior to Mr. Gibson's attempt on record, we arranged with him to send us a series of postcards stating time of arrival and departure at intervals on the route, signed in the presence of witnesses. This collection is in the possession of *The Motor Cycle*, and may be inspected by any interested parties. On the occasion of each of the four End-to-end sidecar records, we arranged beforehand for these postcards to be sent us with the express purpose of allaying any suspicion that might exist. Moreover, we may add that we attached seals to the vital parts of the machine before the start, and on examination after the record ride they were found to be intact.

Worcestershire M.C.C. Speed Judging Contest last Thursday. G. R. A. Deacon (secretary) starting away from headquarters—Hop Market Hotel, Worcester.

FUTURE EVENTS.

June 25—R.A.C. seventh provincial meeting of the Associated Clubs at Chester.
" 25—M.C.C. Members' Petrol Consumption Trial.
25—Bradford M.C.C. Open Hill-climb at Cockshoot Lane, Skipton, 2 p.m.
July 4-9—A.C.U. LAND'S END TO JOHN-O'-GROAT'S RELIABILITY TRIAL.
" 4-20—Bournemouth Centenary Fetes.
" 13—Open Irish End-to-end Reliability Trial, promoted by the Ulster Centre M.C.U.I..
" 13 (Wed.) and 14 (Thurs.)—Brooklands A.R.C. Meeting, 2 p.m.
" 16—Herts County A.C. (motor cycle section) inter-team competition with the Oxford M.C.C.
" 23—A.C.U. Quarterly Trial, Uxbridge to Banbury and Back.
Aug. 1—Brooklands A.R.C. meeting, 2 p.m.
" Coventry and Warwickshire M.C. open hill-climb for motor cycles.

Woodman nearly better again.

We are glad to state that Alan E. Woodman, the T.T. entrant who met with an unfortunate accident in practice, is progressing rapidly. We have had the pleasure of receiving a letter from him this week, in which he states he has been sitting out on the hospital balcony since Thursday, and early next week expects to start walking a little. He anticipates leaving Manxland by the first week in July.

Northern League of Motor Cyclists.

The meeting of the Council of the League did not take place as originally arranged, on the 18th inst., owing to the fact that not sufficient agreements had been received by the secretary, who desires to remind the various hon. secretaries of the fact that it is most important that these agreements should be sent in at once, so that arrangements may be made for the first trials, etc., and the entire summer programme for 1910 submitted. The secretary will also be pleased to send any hon. secretary who has not yet received the rules, etc., of the League a copy on receipt of a postcard bearing his name and address.

A Stipendiary becomes a little excited.

The Liverpool Stipendiary magistrate worked himself up into a state of wrath on hearing the case of S. L. Leftly, a motor cyclist summoned for having ridden his machine at a dangerous speed without sounding an alarm at the junction of St. Oswald Street and Edge Lane Drive. Defendant estimated his speed at six to eight miles an hour, whilst the constable inflated it to eighteen or twenty. Mr. Shepherd Little, the magistrate, is reported to have said: "I take a great interest in these wild animals, and when I see them I am amazed at the speed that they strike me as going at. I think these animals must be kept in check. The defendant will be fined 20s. and costs." If he made use of such expressions he evidently forgot his manners, and we would remind him that a stipendiary's duty is to administer justice, and not to gratuitously abuse a defendant brought before him on such a doubtful charge.

R. G. Geslett (3½ P. and M. two-speed) waiting for the signal to restart half way up Aston hill in the Herts. County A.C. climb. He was third on formula.

RACING AT BROOKLANDS.

THANKS to the extraordinary luck which has favoured Brooklands meetings ever since its inception, Saturday proved to be one of the grandest days we have yet had this summer, and resulted in there being what we judge to be the biggest attendance that the turnstiles at the track have ever registered. This was, no doubt, largely due to the fact that exhibitions of flying were booked to take place after the racing; but, even so, very great interest was taken in the programme, which comprised ten events, of which two were for motor cycles. These were the June Motor Cycle Handicap (1st £5, 2nd £3, 3rd £2), for all classes of machines of an engine capacity between 500 c.c. and 1,000 c.c. Distance, 8½ miles. This race brought forward fifteen entrants, all of whose mounts had twin-cylinder engines.

The scratch men were C. R. Collier and Lee Evans, and the former, on an 85½ mm. × 85 mm. Matchless soon got into winning form and rapidly overhauled the field. Lee Evans, on a big Indian, did not seem to get going as well as usual, and half the race was over before he got into his stride. The order at the Members' Bridge in the first lap was as follows: Le Grand (1m. 27s.), Rex; F. A. Applebee (1m. 27s.), Rex; Geiger (1m. 27s.), V.S.; Partridge (1m.), N.S.U.; Steeves (1m. 27s.), N.S.U.; Dayrell (24s.), Martin-J.A.P.; H. V. Colver (18s.), Matchless—these two were travelling very fast indeed—H. A. Collier (18s.), Matchless; Deacock (1m. 27s.), Wanderer; Benttler (24s.), Bat; D. R. Clarke (18s.), Indian; Lee Evans (scratch), Indian.

After One Lap.

A lap more put Applebee first, with Le Grand close on his heels, but Charlie Collier was riding in splendid style, and was clearly a great many miles an hour faster than the leaders. After him came Colver, Dayrell, and Lee Evans.

The finish of the race was a foregone conclusion, Collier coming in well ahead of Colver and Dayrell, whilst Harry Collier finished a good fourth.

		Start.
1.	C. R. Collier (8 h.p. Matchless, 976 c.c.)...	scr.
2.	H. V. Colver (5 h.p. Matchless, 666 c.c.)...	18s.
3.	F. W. Dayrell (8 h.p. Martin-J.A.P., 964)	24s.

The winner's speed was 72¾ m.p.h.

Applebee stood a good chance of getting a place on his chain-driven Rex had not his pace fallen off somewhat. He did the first lap in good style, but the backmarkers were too strong for him. Dayrell had a plain coil and battery ignition on his Bat, and very well it served him, for he finished only a length or two behind the winner.

Twenty-nine Competitors in the Summer Handicap.

The second motor cycle race was the Summer Motor Cycle Handicap. £10 for first, £5 second, and £3 third. Distance, 5¾ miles. This produced a field of twenty-nine.

Amongst the early starters, Brunton, on a 76 by 76 mm. New Century, soon got going well, and, after overhauling Peach on a similar sized Minerva, kept in front for some time until passed by Oberländer on a twin N.S.U. (52 by 74 mm.), who had started 10s. later, but who was travelling so well that the "bookies" on the hill found it necessary to lower the prices about him. After the above-mentioned riders came Sir R. K. Arbuthnot (1m.), Triumph; Chitty (56s.), Frays; Colrick-Herne (52s.), Triumph; Dewar (52s.), Triumph; H. Hunter (52s.), Triumph; G. F. Hunter (52s.), Triumph; F. W. Applebee (52s.), T.T. Centaur; V. Yates (48s.), Rex; Jacobs (48s.), Rex; Geiger (46s.), V.S.; Le Grand (46s.), Rex; Maitland (46s.), Trump-J.A.P.; Gibson (46s.), Trump-J.A.P.; McNab (46s.), Trump-J.A.P.; Tapley (46s.), Calthorpe; Godfrey (42s.), Rex; Perkins (18s.), N.S.U.; Wilberforce (8s.), Indian; Charlie Collier (scratch), Matchless; Colver (scratch), Matchless; and G. Lee Evans (8s.), Indian.

A novel view of competitors riding out of the paddock at Brooklands to take part in one of the two races held on Saturday.

The second lap was started on with Oberländer a long way in front, followed by Colrick-Herne, Arbuthnot, Maitland, Chitty, and Brunton. The last-named had a funny little machine, with a Longuemare carburetter almost as large as the engine. The oil and petrol tanks were also two tiny torpedo-shaped affairs. The machine was undoubtedly fast, and might have done some good, but during the second lap the belt was slipping badly.

Lining up in the paddock for the start of the Summer Motor Cycle Handicap at Brooklands on Saturday last.

Racing at Brooklands.—

Some of the back-markers put up a fine show on the big banking by the Members' Bridge. Charlie Collier, right up the banking, passed Colver, who was keeping lower down, but who in turn overhauled Peach and Wilberforce.

The race finished with Oberländer an easy winner:

	Start.—m. s.
A. Oberländer (two-cylinder N.S.U., 314 c.c.)	1 30
E. D. Colrick-Herne (3½ Triumph, 499 c.c.) ...	52
H. V. Colver (5 Matchless, 666 c.c..)	scr.

Winner's speed 54 m.p.h.

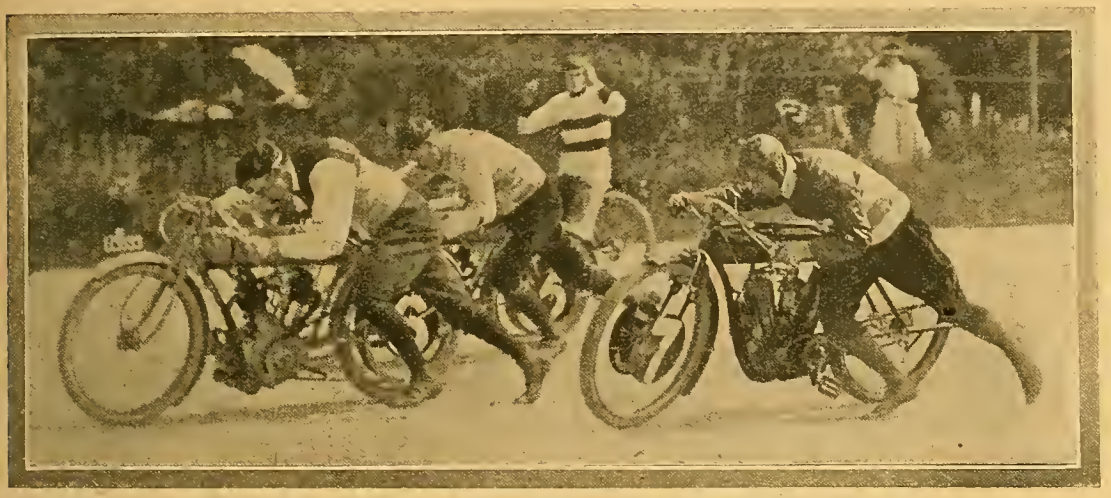
Colrick-Herne was second, and Colver a good third. The latter was travelling magnificently, and had the race been half a mile longer he would have won. Next came Charlie Collier, with Maitland hard on his heels.

Chitty's machine had a J.A.P. engine, but instead of a single exhaust pipe it had two, both branching from the valve chest, and thus sticking out on either side of the cylinder. It also had auxiliary exhaust release.

Brunton's New Century had a Givandan engine, and also had a somewhat strange auxiliary exhaust, consisting of four radial tubes drilled and plugged.

The 3½ h.p. Calthorpe, which made its first appearance on the track, is a nice looking machine on standard lines, and has a vertical engine with chain-driven magneto in front. The tank slopes away at the back *à la* Rex.

A very noticeable feature of the racing was the fact that most of the men rode in their shirt-sleeves. The weather was much too hot for jerseys.



H. A. Collier and H. V. Colver (Matchless J. A. P.'s), and D. R. Clarke (Indian), starting in the June Handicap at Brooklands. Colver and Collier finished second and fourth respectively in this event.

IRISH END-TO-END RELIABILITY TRIAL.

The above important event, under the auspices of the Ulster Centre of the Motor Cycle Union of Ireland, has been fixed for the 13th July next, and is already attracting considerable attention. The competition was inaugurated in 1909, when over twenty riders took part and proved so successful that the number of starters will probably be doubled this year. The contest consists purely of reliability, and is judged by the ability to run to schedule [illegible] stations being arranged when the time of each co[illegible] taken. The rules and regulations are now re[illegible] intending to take part in the trial shoul[illegible] the secretary, E. B. Waring, 19, H[illegible] whom all information co[illegible] prizes will be gi[illegible] awarded to [illegible]

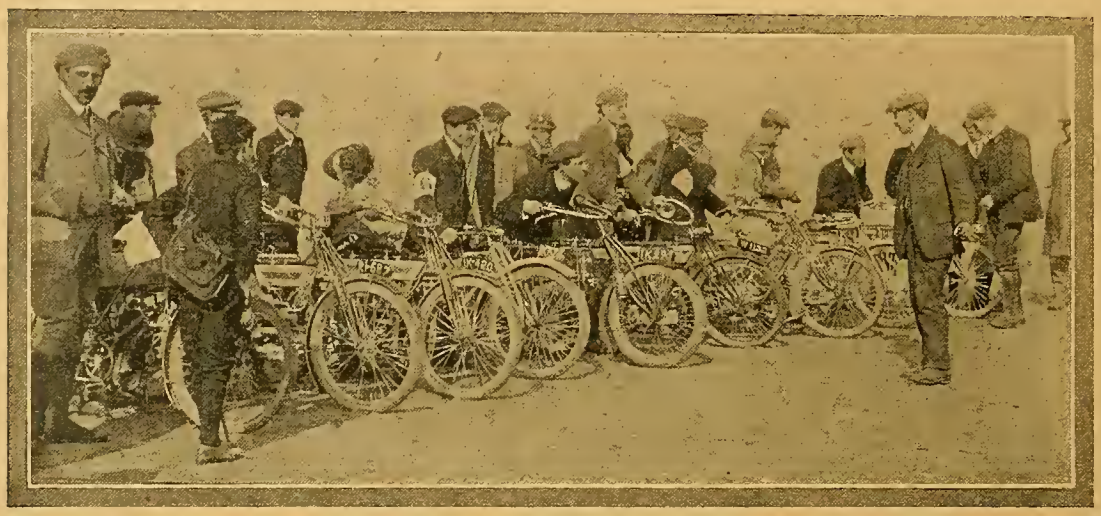
SPEED TRIALS AT PORTMARNOCK.

DESPITE the advantages that the Velvet Strand at Portmarnock offers to Dublin motor cyclists for the purpose of holding speed tests, that venue does not retain the popularity it acquired when first "discovered." A few years ago race meetings at Portmarnock were of almost weekly occurrence, but this year only three are announced—two under the auspices of the Dublin and District Motor Cycle Club and one by the Motor Cycle Union of Ireland. The first of these was held on Saturday last, when the Dublin and District Club ran off three events. The evening was very favourable, and some keen racing was witnessed in the various races. Franklin was the virtual scratch man in the open events, and ran third in each. In the twenty miles he did a good performance by covering the distance in 25m. 55s., breaking his own record for the [illegible] won the twenty miles, and was second to [illegible] novices' race was secured by

One Mile Handicap.—J. Healy (3½ h.p. Rex), 25s. start, 1; R. Walsh (3½ h.p. Triumph), 15s., 2; C. B. Franklin (5 h.p. Indian), 3s., 3. Also ran: Carlville (2¾ h.p. Douglas), 40s. start; Green (3½ h.p. Peugeot), 25s.; McQuirke (4½ h.p. Minerva), 20s.; Jameson (3½ h.p. Triumph), 20s.; Tyson (3½ h.p. Triumph), 15s.

Twenty Miles (out and home over mile course).—R. Walsh (3½ h.p. Triumph), 5m. start, 1; J. Tyson (3½ h.p. Triumph), 5m., 2; C. B. Franklin (5 h.p. Indian), scratch, 3. Also ran: Carville (2¾ h.p. Douglas), 12m. start; Chambers (2¾ h.p. F.N.), 12m.; Healy and Green (3½ h.p. Peugeots), 7m.; McQuirke (4½ h.p. Minerva), 7m.; Woods (3½ h.p. Bradbury), 4m. Walsh won easily by over two miles, Franklin being a poor third. Nett times: Walsh, 28m. 5s.; Tyson, 30m. 20s.; Franklin, 25m. 55s.

Two Miles (Novices') Handicap.—Green (3½ h.p. Peugeot), 25s. start, 1; McQuirke (4½ h.p. Minerva), 15s., 2. Time (nett), 3m. 22⅕s.



Racing at Portmarnock Beach on Saturday last. Start of the Novices' Race, won by H. Green (3½ Peugeot).

SMARTENING UP A TRICAR.

By F. H. WHITE.

THOSE who are not fortunate enough to be able to indulge in a new mount every year will be pleased to know how to make their old love look smarter.

The first thing that faces one in this respect, usually, is the necessity for re-enamelling, as the plating is often in very good condition long after the enamel is scratched and looking the worse for wear, and there is no reason why a tricar should not be smartened in this way at a cost of a few shillings.

Re-enamelling and Lining.

Prompted by a desire to improve the appearance of my three-year-old tricar, I recently decided to try my hand at re-enamelling and lining.

The colour decided upon was dark blue, with white lines, and if I may say so without being considered egotistical, the machine presented when finished quite a smart appearance, and only a very close inspection would have revealed the fact that the lining had been done by an amateur.

The first thing to decide was what enamel to use. There are, I believe, several very good enamels for the purpose on the market, but whether it was the sight of the prize-winning samples of tubes at Gamage's recent competition, or the amount of advertising it has received, I know not. Anyway, I plumped for Robbialac, and have certainly not regretted my choice. I purchased two tins at 1s. 6d. each, and used very little of the second tin, despite the fact that my machine is a coach-built one. There is no doubt, therefore, that one tin would be ample for a motor bicycle.

Now, as to the mode of procedure. I may say at once that, not being of a very patient turn of mind, I did no more stripping than was absolutely necessary, the only parts removed being the front seat complete with springs, driver's bucket seat, all footboards, and toolboxes. I also left sandpapering to look after itself, though, of course, if time and patience allow this is to be highly recommended.

Applying the Enamel.

After thoroughly cleaning all framework and coach-work, I proceeded to apply a thin even layer of the enamel with a good quality, medium hard, flat enamelling brush, which cost 1s., and I may here say that one of my doubts was at once allayed, and that was with regard to the covering property of the enamel. The machine was originally dark green, but one coat, although not at all thick in itself, was quite sufficient to entirely obliterate any sign of green, and produced a beautifully smooth and shiny hard surface when dry.

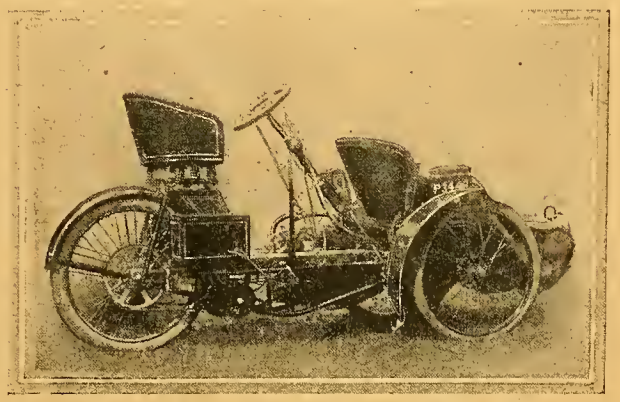
And now we come to the lining, which was another cause of grave doubt to me before tackling it, and often I think debars one from attempting the re-enamelling altogether, as paintwork certainly does look very "amateurish" if not lined.

There are two ways of accomplishing the lining. The first is to have it done for one, and the other is to do it one's self. In the former case, if one has done all the enamelling and preparing, the charge of an expert for lining a tricar or motor bicycle should be very moderate, especially if there is not too much of the air of a wealthy motorist displayed!

In the country most good wheelwrights employ man capable of this work.

Lining for Amateurs.

However, I decided to line the machine myself. therefore procured a small sample tin of white enamel, keeping it fairly thin all the time it was in use by adding a little turpentine, though with enough body to produce a quite white line, and with the point of a camel-hair brush traced over the old white lines which just faintly showed through the blue enamel, using any convenient edge or surface as a guide for the hand. As a matter of fact, a special brush is made for the purpose of lining, having hairs 1½in. to 2in. long, and known as a lining tool, which is much better than



The tricar described in the accompanying article after being re-enamelled dark blue and lined white by an amateur.

the one I used, as they hold more paint and can be laid well on the line and drawn along a good distance without renewed dipping in the paint, thus ensuring a straight line being made, and with a little practice considerable proficiency can be attained.

Where the lines did not show through, or where none previously existed, I marked points at intervals, equal distances from the edges, and made a pencil or light chalk line over which I followed with the brush.

While the machine was dismantled I fitted a new lid to one of the tool boxes to replace a cracked one, and a new front lamp bracket adapted for a separate generator gas lamp. This was much more easily accomplished with the front seat removed. Among other minor alterations, I also fitted a new apron. This was made of best quality American cloth lined with a cheap woollen material.

In the first place, I cut brown paper patterns the shape of the top and side pieces of the apron to fit the portion of the front seat occupied by the passenger's legs. The American cloth and wool lining were then cut to these with allowance for turnings at seams, and the whole well sewn together, with strong braid at all seams and edges, and brass rings attached by leather tabs where required. The sewing I had done at a local bootmaker's, and the total cost of the material and labour was about seven shillings.

The treatment described not only improves a machine's appearance for one's own pleasure, but considerably enhances its selling value.

CLUB NEWS

Shropshire M.C.C.

At a committee meeting held on the 16th inst. at headquarters, it was decided that the competition for the A.C.U. Cup should take the form of a hill-climb at Wenlock Edge on Thursday, July 21st. There will be a first and second prize. The following runs were arranged:

June 26th.—Vyrnwy, 35 miles; start 10 a.m., return 6 p.m. prompt.

July 3rd.—Llanidloes, 50 miles; start 10 a.m., return 6 p.m. prompt.

July 10th.—Lichfield, 41 miles; start 10 a.m., return 6 p m. prompt.

July 17th.—Bettws-y-coed, 60 miles. A non-stop run will be held to Bettws and back on this date. Competitors will be started from Shrewsbury at 10 o'clock prompt, and must arrive at Bettws not later than 1 o'clock and not before 12.30. They will be sent on the return journey at 6 o'clock, and must arrive in Shrewsbury by 9 o'clock and not before 8.30. Club certificates will be given to all making a non-stop run.

North-west London M.C.C.

The results of the hill-climb at Lippetts Hill, near Potters Bar, on A.C.U. formula, as passed by the committee. are as follow:

Lightweight Class.—W. Doe (Douglas), figure of merit 74.4 (fastest time); Miss Berend (Moto-Rêve), 163.4; A. Loughlin (2½ h.p. Max), 176.2.

Single-cylinder Class.—W. Cooper (3½ h.p. Bradbury), figure of merit 48 (fastest time); E. Colliver (3½ h.p. Triumph), 58; L. Joiner (3½ h.p. Brown), 79.5; H. Pooley (3½ h.p Premier), 81.6; E. Westacott (3½ h.p. Triumph), 83.3; H. Hollis (3½ h.p. Triumph), 98.2; H. Frankel (3½ h.p. Triumph), 132.8.

Twin-cylinder Class.—H. G. Cove (6 h.p. Matchless), figure of merit 104.2 (fastest time); J Liscombe (6 h.p. Laurin and Klement), 140.8.

Passenger Class.—F. Thomas (7 h.p. G.O.K.), figure of merit 80.4 (fastest time); G. Rowden (8 h.p. Bat), 103; H. Berlandina (7 h.p. V.S.), 135.6.

The gymkhana will be held on July 2nd. A splendid programme has been arranged.

M.C.U.I. (Ulster Centre).

A hill-climbing competition in connection with this centre was held at Ballybannon, near Castlewellan, on the 18th inst., for prizes presented by Mr. C. E. Murphy, of Cootehill. It is three years since a contest took place on this hill, and Saturday's event was looked forward to with considerable interest. The surface was scarcely in as good order as usual, but, notwithstanding this, some very fast climbs were made. An entry of seventeen had been received, but a few of the riders did not reach the starting point. The fastest time was recorded by J. E. Coulter on a 3½ h.p. Triumph, and this rider tied for first place with T. Mallon (3½ h.p. Premier), but at the second trial Coulter won rather easily. The electrical timing apparatus was used, and worked most satisfactorily:

	Gross time.	Handi-cap.	Nett time.
*J. E. Coulter (3½ Triumph) ...	32⅕s. ...	1⅖s. ...	30⅘s.
*T. Mallon (3½ Premier)	34⅖s. ...	3⅗s. ...	30⅗s.
J. Stewart (3½ Triumph) ...	32⅘s. ...	scr. ...	32⅘s.
J. D. Coates (3½ Triumph) ...	41s. ...	6s. ...	35s.
J. Lavery (3½ Triumph) ...	43⅗s. ...	5⅖s. ...	38⅕s.
D. H. O'Flaherty (3½ Triumph)	42⅖s. ...	4s. ...	38⅖s.
B. J. McManus (3½ Premier) ...	39⅖s. ...	scr. ...	39⅖s.
S. S. Porritt (3½ Triumph) ...	43s. ...	3⅕s. ...	39⅘s.
J. "Gordon" (3½ Triumph) ...	46⅕s. ...	2s. ...	44⅕s.
D. H. O'Flaherty (3½ Triumph)	49s. ...	3s. ...	46s.
Hugh Denby (3½ Rex)	63s. ...	7s. ...	56s.

*Dead heat. On re-riding for first place, Coulter won by over 7s., beating his previous time by 1⅖s.

Officials: Starter, M. J. Lindsay; judges, T. H. Dunlop, R. G. Lindsay, and J. S. Garrett; timekeepers, H. E. Lyners and E. B. Waring.

Streatham and District M.C.C.

The committee have accepted with regret the resignation of the captain, Mr. W. V. Sherwell, who was one of the founders of the club.

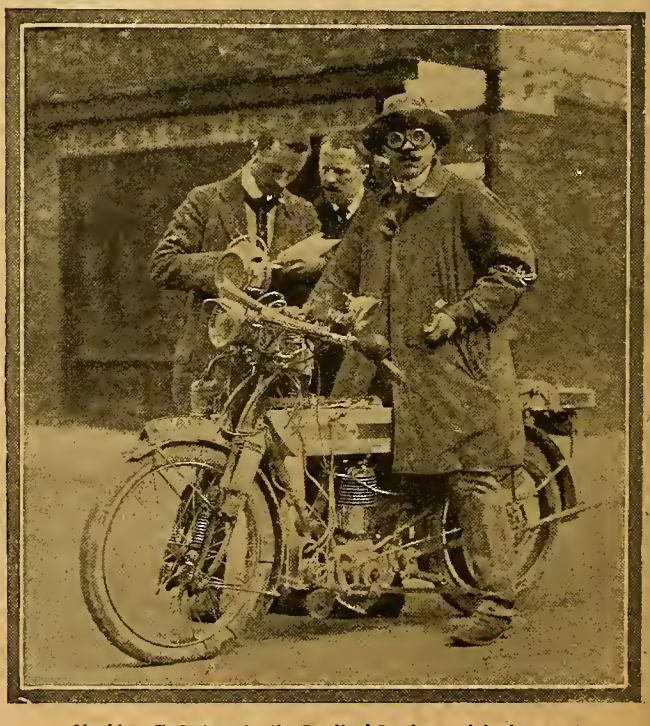
The committee are pleased to announce that they are fortunate in finding Mr. Hunter, who will undertake the onerous duties of captain.

An impromptu hill-climb is being held on Wednesday, 29th inst. Members will meet at the Clayton Arms, Godstone, at 4 o'clock sharp, when the venue of the hill will be announced.

A special meeting of members and their friends will be held on July 3rd, at the Clayton Arms, Godstone.

North-Eastern Automobile Association.

The reliability trial, open to members of the N.E.A.A., which took place on June 11th over a 120 miles course from Sunderland to Brough (Westmoreland) and back, has resulted as follows: H. M. Wood, Newcastle (3½ h.p. Triumph), 1; H. Mason, Newcastle (5 h.p. Bercley), 2; H. F. Inkson, Newcastle (3½ h.p. Excelsior), 3; E. J. Tiffin, Sunderland (7-8 h.p. Minerva); T. T. Jack, Sunderland (3½ h.p. Triumph); I. Baty, Newcastle (3½ h.p. Dean); F. Rowntree, Newcastle (4½ h.p. Minerva); L. Forster, Sunderland (3½ h.p. Triumph); G. W. Rayner, Newcastle (6 h.p. N.S.U.); W. M. Duguid, Newcastle (3½ h.p. Triumph); F. Turvey, jun., Sunderland (3½ h.p. Humber); J. P. Robson, Newcastle (3½ h.p. Excelsior); J. Adams, Newcastle (3½ h.p. Excelsior); and T. Holzappel, Newcastle (5 h.p. Rex), the order in which the names are given indicating precedence in order of merit. J. Clark, Newcastle; T. Wood, Darlington; and H. N. Hall, Bishop Auckland, did not finish. Messrs. Wood and Mason, who are placed first and second respectively, tied, having only lost two marks throughout the journey, and the result was arrived at by taking into consideration the times at the secret checks, which only differed 8 secs.



Checking F. Scriven in the Bradford-London and back run at Beaumond Cross, Newark-on-Trent.

Club News.—

Coventry and Warwickshire M.C.

It has again been decided to hold an open hill-climb for motor cycles, and the date will be announced later. Classes embracing nearly all types of motor bicycles will be included in the programme, as well as a class for passenger machines.

Redditch and District M.C.C.

There will be a club run to Warwick and Leamington on Saturday. Further runs arranged are: July 9th, Pershore and back to tea and smoking concert at the Unicorn. July 23rd, Evesham and boating picnic on the River Avon.

Proposed Club for Lancaster and Morecambe.

Readers in the neighbourhood of Lancaster and Morecambe desiring to help in the formation of a motor cycle club should communicate with Mr. C. H. Hitchen, Euston Road, Morecambe. Mr. Hitchen is prepared to offer a prize for a reliability trial or hill-climb.

Bishop Auckland, Darlington, and District M.C.

A successful team trial was held recently, in which six teams took part, each composed of four competitors. The route was over a course of forty miles, which had to be completed at a speed of 18 m.p.h. Riders were penalised one mark for each half-minute ahead or behind schedule time. The winning team finished 10s. only behind time, and was composed as follows: J. Adamson (3½ h.p. Rex), R. S. Cowper (3½ h.p. Triumph), A. R. Poole (3½ h.p. Triumph), and R. Rowntree (3½ h.p. Bradbury).

The flexibility and speed-judging competitions will be held on the 29th inst.

Newcastle and District M.C.C.

The annual two-days reliability trial for motor cycles promoted by the Newcastle and District M.C. for the N.S.U. and A.C.U. cups, will be held on July 31st, and August 1st. This is one of, if not the, principal reliability trial in the North, and is always well supported, the turnout last year numbering thirty-five riders.

This year's route will be from Newcastle to Stranraer, *viâ* Morpeth, Wooler, Kelso, Selkirk, St. Mary's Loch, Moffat, Douglas Mill, Muirhead, Ayr, and down the west coast of Scotland, and back from Stranraer *viâ* Newton Stewart, Castle Douglas, Dumfries, Annan, Conobie, Langholm, Hawick, Jedburgh, and Otterburn to Newcastle.

The winner of the two-days trial will receive the N.S.U. cup and a gold medal presented by the president, Mr. Robert Crosier, and the A.C.U. cup and medal will go to the second man. A silver medal, presented by Mr. L. Rosenvinge, will be awarded to the novice making the best performance, gold medals will be awarded to those who do not lose more than thirty marks, and bronze medals to those losing not more than a hundred marks.

Stroud and District M.C.C.

The opening run of the above newly-formed club was to Painswick, Birdlip, Cirencester, Northleach, Cheltenham, and Stroud. Eleven members took part and spent a most enjoyable time. Mr. G. H. Pavey Smith was the captain.

Birmingham M.C.C.

Club fixtures for the week-end are: Saturday, June 25th, Cleeve Prior. Meet King's Heath Tram Terminus, 2.45 p.m., *viâ* Alcester and Bidford. Distance, thirty miles. Sunday, June 26th, Stourport (afternoon run). Meet Fountain, Hagley Road, 3 p.m. Distance, twenty-three miles.

Reading and District M.C.C.

On the 25th inst. the run is to Eversley, starting at 3 p.m. from Whitley. Next day, members will ride to Burnham Beeches, leaving The Park, London Road, at 2.30.

A general meeting is to be held on Friday, June 24th, at headquarters, 9 o'clock.

Western District M.C.

The reliability trial to Daventry and back for the Triumph Cup was well supported, there being thirteen starters out of fourteen entrants. The following are the results:

1. E. Caudwell (3½ h.p. Triumph) ... Non-stop.
2. W. F. Ritchie (5 h.p. V.S.) ... ... Non-stop.
3. F. W. Ritchie (5 h.p. Indian) ... Non-stop.

Non-stops were also recorded by B. E. Platt (3½ h.p. T.T. Triumph) and B. Martin (3½ h.p. Triumph).

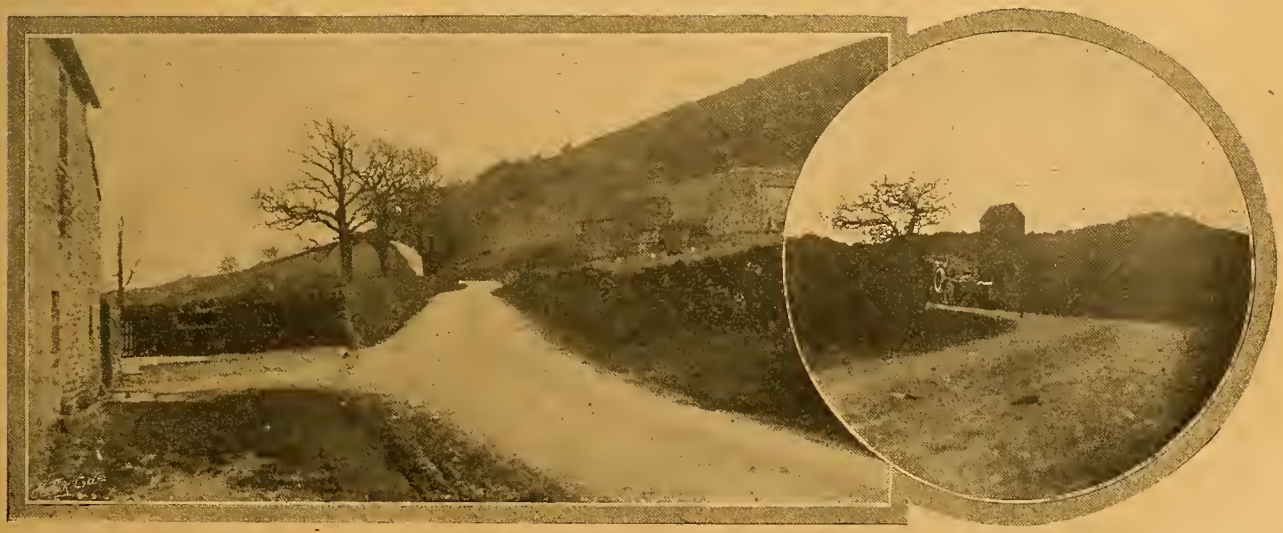
Leicester and District M.C.C.

A hundred miles reliability trial has been arranged for June 30th, and a course, approximately twenty-five miles, will be selected near Leicester.

A run on the 12th inst. was held jointly with the Northampton M.C.C. A splendid attendance was made, and the trip was of historic interest, covering as it did Naseby Battlefield and Rothwell Church, etc. The return journey was through Daventry, where the Leicester men bade good-bye to their Northampton friends.

Middlesex County A.C.

The annual hill-climb of the Middlesex County A.C., the first since the club's reconstitution as the County Club, took place on the 11th inst. on Handpost Hill, on the road between Northaw and Newgate Street. The hill has a rise of 1 in 7 over a great part of its length. Mr. A. G. Reynolds, who shared the work of timekeeping with Mr. J. H. Burley, handicapped and judged the motor cycles. The results were: 1, W. H. Wells (5 h.p. Indian), fastest time—winner of Earl Ronaldshay Cup and gold medal; 2, H. Grose (8 h.p. Chater-Lea with sidecar); 3, H. Gibbs (3½ h.p. Triumph); 4, W. Bruce (8 h.p. Chater-Lea and sidecar); 5, C. T. Cutler (3½ h.p. P. and M. and sidecar); 6, L. Marcus (3½ h.p. Triumph).



COCKSHOOT LANE, NEAR SKIPTON, THE SCENE OF THE BRADFORD M.C.C. OPEN HILL-CLIMB ON SATURDAY NEXT.

(1) Starting point showing the first severe rise between the trees. (2) A bend in the hill about half way up.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

Controlling a Twin at Slow Speeds.

? At present I have a Brown and Barlow on my twin Vindec Special. The machine is a lot too fast for town work. Can you tell me a way to make the engine more controllable at slow speed?—B.J.

Your machine could be made to run slower by fitting a smaller jet and reducing the diameter of the air cone round the jet by means of the special ferrules supplied by Brown and Barlow, Ltd. If your machine still runs too fast, you might try slightly weaker inlet springs. Do not alter your present ones, but fit weaker springs if you can get them. If you still experience trouble in throttling down sufficiently, try a lower gear ratio.

Continental Touring.

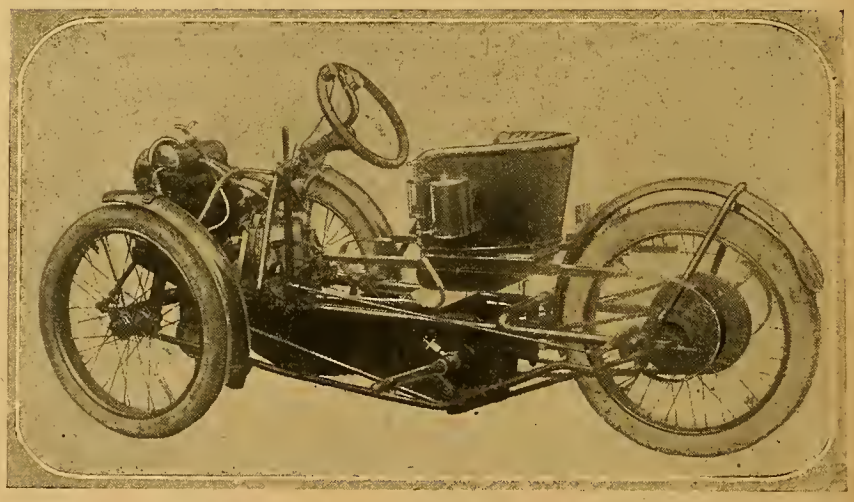
? (1.) Is there by law any necessity for a person taking a motor bicycle into France to have fresh number-plates or take out a driver's licence, and if so how much does the licence cost? (2.) Are there any octroi duties into Paris, and if so, what are they? (3.) Can you also tell me which is the best road from Paris to Orleans? I am not very particular about taking a circuitous route, so long as I have a road with a good surface. I understand that people do go to France and do not take out a licence or have fresh number-plates, but that this is against the strict law of the country. I am a member of the Touring Club de France, and understand that I can take my machine into the country if I have a Plaque de Control on payment of sixty centimes.—M.

(1.) The very latest information with regard to taking machines into foreign countries was published in *The Motor Cycle* of May 5th under the heading of "International Motor Licences," see page 396. (2.) There are octroi duties when entering Paris on the petrol in the tank. It is therefore advisable to reach the octroi gates with as small a quantity of petrol as possible, either way, and if you are staying inside the Paris gates and it is your intention to return the same day, you should endeavour to return with the same amount of petrol as there was in the tank when you left. Petrol is cheaper outside the gates than inside. (3.) The main road from Paris to Orleans is a particularly good one, and leaves Paris by Versailles, passing through Limours and Dourdan. The total distance is 128 kilometres. If you are a member of the Touring Club de France you will have no difficulty in taking your machine into the country unless the new regulations referred to above affect the Touring Club de France regulations.

Magneto Switches.

? (1.) I am in a state of indecision as to whether to fit a switch to my 1909 Triumph or not. I have been strongly advised both ways by more experienced riders than myself. I shall be greatly obliged if you will kindly inform me as to what, in your opinion, can be learned from the T.T. Race as regards the desirability or otherwise of switches. Were the majority of the machines fitted with switches? I notice you refer to "switching off" in your excellent report of the race. (2.) When my machine is running perfectly on the level or easy grade using the utmost air it will take and I come to a decided rise, or want to accelerate, should I leave the throttle alone and reduce the air, or leave the air alone and increase the throttle? Either has the same effect, and I should like to know whether it is better for the engine to do the majority of the manipulation of the mixture with the throttle or with the air lever? Which gives the best carburation for the work to be done?—NOVICE.

(1.) There is no reason whatever why you should not fit a switch to your machine if you would like one. It is quite easily done, and has the advantage of enabling one to stop the machine if by any chance the exhaust valve lifter wire should break, or the throttle is not a gas-tight fit. On the other hand, there is no real need for one. As to how many machines competing in the Tourist Trophy Race were fitted with switches, we are afraid we cannot recollect, but we should estimate that not more than 25 per cent. of them had switches. Please bear in mind that the term "switching off" is used rather loosely here, and is about synonymous with the raising of the exhaust valve lifter. (2.) In the cases mentioned you had better open the throttle slightly to accelerate speed, adjusting the air to suit as occasion should require. Drive on the throttle as far as possible, and use as perfect a mixture as you can to enable the engine to keep cool.



A smart 6 h.p. Twin-cylinder Eagle Runabout owned by a member of the Leeds Motor Cycle Club. Special attention is directed to the springing of the driver's seat.

Equipping a Lightweight.

(1.) I am buying a new light F.N., 2¼ h.p., 1910, and wish very particularly to avoid punctures. Would the fitting of (i.) Palmer Cords or (ii.) heavy Kempshalls materially lessen this risk? Would it be both possible and desirable to get 2¼in. tyres instead of 2in.? (2.) Would the addition of (i.) (handle-bar) magneto control or (ii.) a switch (I shall ride in traffic) be worth the (small) extra expense? (3.) Would the fitting of a larger or other silencer considerably lessen the noise?—R.F.J.

(1.) If you wish to lessen the risk of punctures it would be advisable to fit heavier tyres of any well-known make. The two brands named are first-class and equal in merit. If there is sufficient clearance, 2¼in. tyres would increase the comfort and render tyre troubles less likely. (2.) We should advise the addition of handle-bar control to the magneto. It would be well worth the extra expense. (3.) The larger silencer, if it is efficient, should reduce the noise. Consult the makers on this point.

Various Queries.

Kindly help me by answering the following: (1.) What other disadvantages (if any) has wipe contact and trembler coil besides big current consumption? Is it an advantage in wipe contact that it has no platinum points to look after? (2.) What shape of handle-bar is best for good steering on a machine which has XL'All spring forks? I find my machine with footboards and 28in. wheels feels insecure on wet roads and tramlines, although the saddle position is quite low. (3.) With an a.o.v. machine what should be the effect of having exhaust and inlet valve springs too strong, especially the inlet valve? Would the machine refuse to start? (4.) What is really the best way to store accumulators when not in use? I have seen two opposite methods suggested in the press lately, and am perplexed to know what is best. (5.) Can you suggest why, after removing and cleaning the contact breaker (make and break) on a trembler coil machine, we now get the spark at the trembler all the time when the switch is on? I have proved that the wiring does not short to the frame, and so far have been unable to solve the difficulty. (6) Should a 20 ampère four-volt accumulator always give a reading of 4.2 directly after being charged?—L.C.

(1.) There is a variation in the degree of lag in a trembler coil, viz., the appreciable time occupied before the current starts the trembler vibrating, which is not existent with a plain coil. Yes, it is a slight advantage in the case of a wipe contact that there are no platinum points, but in the case of a good plain coil with well-proportioned condenser the platinum points require very little attention, certainly no more than the two points of a trembler coil. (2.) What shape handle-bars you have is simply a matter of your own personal taste. If they are too long and whippy, this would account for the insecure feeling. A low frame is absolutely essential for safe riding on grease. (3.) Of course there is a limit. Too strong springs will in time break the valves and prevent the inlet valve from opening quickly enough, causing difficult starting and impossibility to run slowly. (4.) With regard to storing accumulators, you had better take the advice given in letter 4760, page 420 of *The Motor Cycle* of May 12th. This is the best advice that can be given. (5.) Possibly the insulation of the platinum screw has broken down; this would account for the trouble. (6.) The accumulator should show 4.2 after being charged; some four-volt accumulators show as much as 4.5 when first removed from the charging wires.

Knocking on Hills.

I have a 3¾ h.p. 82 × 86 mm. single-cylinder motor bicycle with two-speed gear, weight 234 lbs. in touring trim, high gear 5 to 1. My trouble is knocking on hills. If I start cold it will take a reasonable hill, but on a journey after a good run it gets hot and knocks. I read your paper eagerly (I wish it were twice as big). So far as I know from eight years' riding experience, the machine is in good order so far as compression, etc., is concerned. My idea is the carburetter is at fault. I have experimented with it, closing or opening jet; if closed, find it fails through insufficient gas; if slightly enlarged, takes all extra air, also about $\frac{3}{16}$ hole in inlet pipe (not affected by throttle). I can open another hole in pipe and so make mixture too weak. Perhaps I have got to limit of machine's capabilities—it has never knocked on low gear. Perhaps you could help me by answering the following questions: (1.) Should it take twelve stones up (solo) Harrow Hill (London to Hastings road; last hill into Hastings) after a sharp run for ten miles previously? (2.) Should I be likely to improve it by lowering the compression by inserting a plate; if so, what thickness would you advise? (3.) Could you advise on better carburetter adjustment? I use a sidecar occasionally, and so want to get the utmost out of the machine.—D.S.C.

F. H. Mullett, the writer of the article, "Checking in Reliability Trials" Mr. Mullet has been very successful in competitions with his 1909 Triumph, his most recent successes being two firsts at the M.C.C. Brooklands Gymkhana.

(1.) Yes, we should say it ought to do it with a gear of 5 to 1, but weight of machine is rather against it. (2.) Possibly, but too thick a plate would mean a great reduction in engine power. Try one-sixteenth of an inch between cylinder and crankcase, and do not forget to lengthen tappets. (3.) You should obtain the back number of *The Motor Cycle* for January 10th containing an article on "Testing and Adjusting Carburetters." Perhaps you do not close the air sufficiently when climbing hills. At any sign of knocking the air lever should be gradually closed.

Sidecar Combinations.

I intend buying a 3½ h.p. two-speed Humber motor cycle for sidecar work. (*a*) Is this machine good enough as regards power, the gear, and lasting qualities of the moving parts? I intend using it in and around London. (*b*) What are the advantages of a flexible over a rigid sidecar or *vice versa*, and which do you advise me to get? (*c*) Is there a sidecar that can be packed quickly into a small space?—P.J.W.

(*a*) The machine is quite powerful enough for average weights if not used in too hilly a district. We do not doubt that it will wear well. (*b*) The advantage of a flexible sidecar is that the combination can be steered more or less like a bicycle, and it perhaps requires less power to propel it. The great feature of the rigid sidecar, however, is its stability on greasy surfaces. The rigid pattern is the one most generally in use. (*c*) The sidecar made by Messrs. Bramson and Company, 6, Farleigh Road, Stoke Newington, N., will fold up into a small space

READER'S REPLY.

A Beginner's Mount.

I notice someone has written in *The Motor Cycle* regarding a beginner's mount, and says that he cannot afford more than £7 or £8. A year ago I was in a similar position, and bought an old pattern Humber 3 h.p. I have had very satisfactory running with this mount, and during the winter had the frame lowered, so that now I can reach the ground with both feet. There are plenty of these machines to be picked up at from £5 to £8. If your correspondent would purchase one of these machines, there are several firms who would cut it down, and he would find that he had a reliable if not up-to-date machine for under £10. It may interest you to hear that after twelve months' riding I have suffered no ill effects as regards the rupture about which I wrote you, and which, through the valuable assistance of your paper, I was enabled to get some practicable advice upon. Perhaps a paragraph in your paper regarding the latter item may encourage some reader who fears taking up the pastime owing to the same infirmity.—YORKIST.

A Motor Cyclist's Garage.

S. E. Pemberton, a pioneer motor cyclist, has lately taken over Bond's Garage, Maidenhead Bridge. Mr. Pemberton will specially cater for motor cyclists.

An Accessory List.

A very complete catalogue of motor cycle accessories reaches us from H. Taylor and Co., 21a, Store Street, W.C. It contains illustrations and particulars of practically all up-to-date motor cycle accessories, and will be sent post free on application to the above address.

Competition Riding.

A lightweight rider accustomed to tune up and ride motor cycles in competitions is open for a re-engagement. His mechanical and riding skill was repeatedly demonstrated three or four years ago, and we have no hesitation in putting any firm interested in touch with "Lightweight, c/o The Editor."

Successful in Competitions.

We understand that a 3½ h.p. Premier, ridden by Mr. S. Hudson, in the Newcastle and District M.C. Edinburgh and back trial, on the 4th and 5th inst., ran through without a single adjustment being necessary, and secured a gold medal. In the Burnley Victoria Cycle and Motor Club's hill-climb on Sawley Brow, Mr. H. Walton, also on a Premier, made fastest time.

Exchanges.

Mr. R. G. Nye, 69, Leather Lane, E.C., makes a point of dealing in second-hand machines of all makes, and is prepared to take second-hand machines in part payment for new ones. Mr. Nye has had considerable experience in this branch of the business, and makes a point of treating his customers fairly and with consideration.

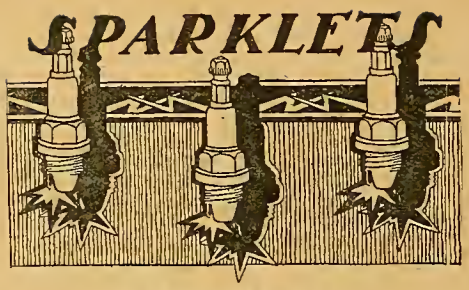
A Reliable Belt.

We are advised by Lycett's Rawido Belt Co., Ltd., Bromley Street, Birmingham, that twenty-five of their belts were used in the T.T. Race. Thirteen of the machines that finished were fitted with them, and not one of the twenty-five caused the riders any trouble. Lyso belts are now made of 30° section, which is said to prevent wedging.

British Motor Cycles in Holland.

Despite a 5 per cent. import duty, we hear that motor cycles of English manufacture are mostly in favour in Holland. The country is particularly flat, nevertheless two-speed gears are in demand, and the Roc motor cycle with two-speed gear has a ready sale, doubtless partly due to the fact that, combined with the two-speed gear and clutch, starting is rendered far easier. Messrs. Croes and Co., Bossum, who are the agents for the Roc machines in Holland, will be glad to supply information to English motor cyclists visiting Holland with their machines.

The correct postal address of A. W. Wall. Ltd., is Roc Motor Works, Hay Mills, near Birmingham, not Tysley, as stated on the 9th inst.



A Topical Showcard.

The manufacturers of Pratt's motor spirit, the Anglo American Oil Co., Ltd., 22, Billiter Street, E.C., are now distributing among dealers throughout the country a new showcard of a topical character. The illustration depicts an aeroplanist descending a ladder from his flying machine and handing a two gallon tin of Pratt's spirit to a motorist who is stranded by the roadside for want of petrol.

The Crowsley Spring Wheel Sidecar.

Some time ago we gave a report of the excellent behaviour of the Crowsley spring wheel sidecar, invented by Mr. E. A. Crowsley, 167, Victoria Street, S.W. The annexed illustration clearly depicts the working of the device, the spring arm of which now works on a large ball bearing. The parts for the spring wheel attachment are manufactured by Messrs. Chater-Lea, Ltd., 116, Golden Lane, E.C., and local cycle agents can now make use of these fittings. A spring wheel on a sidecar is an undoubted advantage. It saves not only the rider, but the whole of the machine, from road shocks. The spring wheel may be fitted to an ordinary sidecar, provided a lug is brazed on to the frame to take the suspension springs.

Arrangement of springing in the Crowsley Spring Wheel Sidecar.

The "Spirit" of Speed.

At the Motor Cycling Club gymkhana and race meeting at Brooklands on the 4th, riders using Shell spirit captured six first, six second, and seven third prizes.

A New Magneto.

The latest motor cycle magneto introduced into this country is the Mea, for which the United Motor Industries, Ltd., 45-46, Poland Street, W., have been appointed sole agents in the United Kingdom and the colonies.

Saddles and Speed.

Of the first fifteen riders who finished in the Tourist Trophy Race thirteen were equipped with Brooks saddles. These saddles are fitted with the well-known system of compound springing, which prevents bouncing and absorbs vibration. The makers, J. B. Brooks and Co., Great Charles Street, Birmingham, will be pleased to furnish further particulars on application.

Supply of Spares on Tour.

Motor cyclists should note that for their convenience the Dunlop Pneumatic Tyre Co., Ltd., have arranged to keep the following depots open till five o'clock on Saturday evenings: London—14, Regent Street. Birmingham—Aston Cross. Manchester—190, Deansgate. Dublin—Oriel House, Westland Row. Newcastle-on-Tyne—11, Bigg Market. Glasgow—61, Bath Street.

An Unbreakable Goggle.

Brown Bros., Ltd., Newman Street, Oxford Street, W., have just introduced a useful goggle with mica instead of glass windows. Another small accessory which motor cyclists may find useful for lighting acetylene gas lamps is the "Hardre" gas lighter. This is an instrument for producing a spark by means of a spring controlled flint and steel. Naturally, it will light a lamp in the highest wind when matches would be easily extinguished. Riders possessing damaged lamps will be interested to know that the above firm have a well equipped repairs department competent to undertake repairs to all kinds of battered and damaged lamps and horns.

Aeroplanes and Flying.

Many motor cyclists are interested in flying, and those who wish to gain more knowledge of the subject should procure a little book called "Flying: The Why and Wherefore," by "Aero-Amateur." A little acquaintance with flying generally breeds a desire to make a model of some kind fly, and the cheapest way of doing so is admirably set forth in "Model Flying Machines," by W. G. Aston. Both books are obtainable from Iliffe and Sons Limited. 20, Tudor Street, E.C., price 1s. 2d. post free.

Those who wish to keep up to date on the subject should also order *The Aero* (a 1d. weekly illustrated journal devoted to flying machines), for it deals very fully with flying all over the world, in a manner which acquits it of any suspicion of being too technical for the ordinary reader.

WHITTLE'S (Patent Link Grip) BELT

was used by Mr. Holroyd on his Motosacoche

IN THE SCOTTISH TRIALS,

who finished without losing a mark, and was awarded one of the only 4 Gold Medals gained. The course was an exceptionally severe one of 897 miles, the gradients in some cases being as much as 1 in 4.

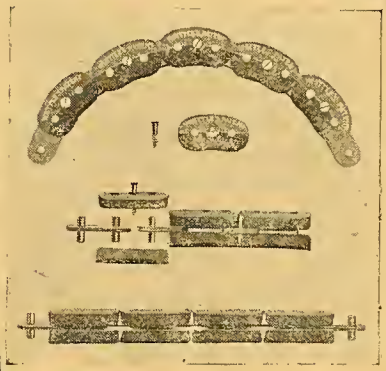
Proving beyond all doubt the

RELIABILITY, FLEXIBILITY, & DURABILITY

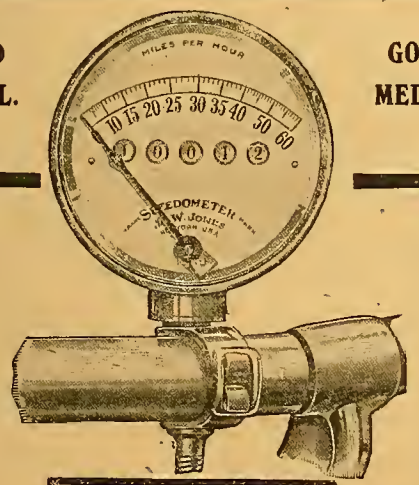
of the Whittle belt under the severest conditions possible.

Send for new Booklet with full directions and copies of recent testimonials.

THOS. WHITTLE & SONS, LTD.,
Rose and Crown St., WARRINGTON.
Telephone—365Y. Telegrams—"Belt, Warrington."



GOLD MEDAL. GOLD MEDAL.



JONES

Your mount is incomplete without this unique Speed and Mileage Indicator.

MODELS:

26. Speed to 60 m.p.h., and Season's Mileage to 10,000 miles' £3 3 0
31. Includes also trip mileage and automatic reset £4 4 0
32. Above with addition of maximum speed hand £5 5 0

FULL PARTICULARS OF

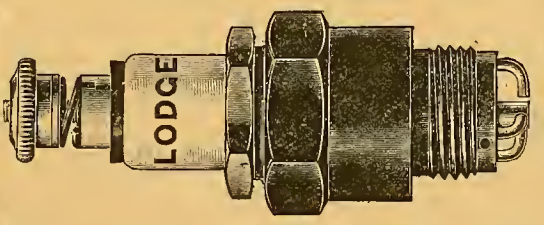
MARKT & CO. (LONDON), LTD.,
6, City Road, LONDON, E.C.

This is the special cycle type of

LODGE

SPARKING PLUG

suitable for all motor cycles
(including the "Triumph").



PRICE **4/-** EACH.

X When ordering a plug for your cycle, always specify "Lodge motor cycle type." X

They are all

DESIGNED FOR MAXIMUM POWER.

Fully guaranteed, and

steel gauge for setting the points free with every plug.

Of all dealers, or post free direct from

LODGE BROS. & CO., Dept. E., 14, New St., **Birmingham.**

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns — 1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

BUY THE BEST.

IT PAYS.

WAUCHOPE'S,

9, Shoe Lane, Fleet Street, LONDON, E.C.,

supply the best at moderate prices. Our Second-hand Machines are the cheapest and best.

No. 2551.—5 h.p. V.S., two-speed gear, magneto ignition, and Truffault spring front forks; **£35.** Guaranteed.

No. 2548.—3¾ h.p. N.S.U., 1909 model, magneto, and spring forks, low frame, condition as new; price **£28 10s.** Guaranteed.

No. 2544.—3½ h.p. 1909 MINERVA, magneto ignition, and spring front forks, as new; **£27 10s.** Guaranteed.

No. 2473.—2¼ h.p. F.N. Runabout, 1910 model, two-speed gear and free engine, three-wheeler, not ridden 200 miles; price **£35.** Guaranteed.

5 h.p. V.S. and Sidecar, two-speed model, 1909, Truffault forks, and magneto; **£50** the complete turnout. Guaranteed.

No. 2039.—4 h.p. ROC, 1909 model, two-speed gear, and magneto ignition, in condition as new; **£32 10s.** Guaranteed.

No. 1997.—10-12 h.p. LAGONDA Tricar, twin-cylinder water-cooled model, three-speed gear, two bucket seats, open frame; price **29 Guineas.** Guaranteed.

No. 2547.—6 h.p. SINGER Tricar, water-cooled, open frame, coach-built, wheel steering, two-speed gear; **£25.** Guaranteed.

No. 2505.—3½ h.p. BAT Racer, J.A.P. engine, 1910 model, Bowen one hour record breaker; **£35**; opportunity to secure the best 3½ h.p. machine on record. Fully guaranteed. At Wauchope's.

No. 2531.—5 h.p. 1910 REX DE LUXE, 1910 model, two-speed gear and free-engine clutch; an ideal passenger machine; **43 Guineas.** Guaranteed.

No. 2535.—3½ h.p. MINERVA, magneto ignition, spring front forks; **£18 10s.** Fully guaranteed.

No. 2419.—1¾ h.p. 1909 Lightweight F.N., in nice condition throughout, magneto, and spring forks; **£22 10s.** Guaranteed.

No. 2480.—5 h.p. Four-cylinder BINKS Motor Cycle, low frame; **£7 10s.**

3½ h.p. QUADRANT, magneto, 1907 model, like new, very powerful, nice finish; **£25.** Guaranteed.

No. 2545.—3½ h.p. MINERVA, sound 1907 model, powerful, accumulator ignition; price **£12 10s.** Guaranteed.

No. 1741.—3½ h.p. QUADRANT, magneto ignition, complete with sidecar; **£25** the whole turnout.

No. 2380.—3¼ h.p. HUMBER, fitted with Phelon and Moore two-speed gear; **£22 10s.** Guaranteed.

No. 2062.—2¾ h.p. MINERVA, vertical engine, M.O.V.; **£10 10s.** Guaranteed.

No. 1041.—3½ h.p. Twin-cylinder GRIFFON, perfect order, very fast; price **£15.** Guaranteed.

No. 2161.—3½ h.p. REX, good condition throughout, very powerful; **£10.** Guaranteed.

No. 2406.—3¾ h.p. REX, low frame, 26in. wheels, real bargain; **£12 10s.** Guaranteed.

Several old Motor Cycles from **£3 15s.** Clearance wanted. No reasonable offer refused.

New Motor Cycles of all leading makes supplied for Cash or Exchange. All requiring early deliveries should take advantage of our large contracts with the leading cycle manufacturers.

WAUCHOPE'S,

9, Shoe Lane, Fleet Street, LONDON, E.C.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry", or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20 Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days, and if no sale is effected, each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

SECTION I.

Northumberland, Cumberland, Durham, and Westmoreland.

1909 Triumph, Palmer cords, first-class condition; £35.—Corre, Lowther St., Carlisle.

MOTOSACOCHE, 1908, good running order; only £9, bargain.—Marley, Gainford, near Darlington.

3½ h.p. Brown, good condition, two expanding pulleys; bargain, £19 10s.—J. M. Hall, J. Burne, engineer, Appleby, Westmoreland.

2 h.p. F.N., good condition, tyres good; £8, or good cycle and cash. — Pearson, Greenfield Terrace, Sacriston, Durham.

REX, 3½h.p., magneto, Amac, h.b. control, new Whittle, adjustable pulley, splendid condition; £24.—Woodhouse, chemist, Sedbergh.

FOR 1910 Triumphs, Humbers, N.S.U.'s, and Enfield lightweights, we can give you deliveries from stock. Why wait? Send for lists.—Write, wire, or 'phone your wants to Turvey and Co., The Motor House, Sunderland.

SECTION II

York and Lancashire.

DOUGLAS, Briton's triumphant lightweight.—Gourlay, Fallowfield.

2¾h.p. Humber, chain drive, good tyres, engine, etc.; £6.—Carr, Bury.

3½h.p. Quadrant, spring forks, Continental tyres, Brooks saddle, excellent order; £16.—Carr, Bury

CROSS for Triumphs in Rotherham, 1910, free engine and standards in stock.

1910 Bradbury, used trials only, Dunlop studs; £43 —Cross, motor agent, Rotherham.

4½h.p. Twin Minerva, new Dreadnought rear tyre; £15 —Cross, Triumph agent, Rotherham.

LIGHTWEIGHT, 2h.p., good order; £4.—14, Norwood Rd., Shipley, Bradford.

2h.p. Motor Cycle, good working order; £7 10s., bargain.—Hudson, High St., Bridlington.

1910 Free Engine Triumph, never been used; £55.— —Le Couteur, Dock Office, Liverpool.

1907 Twin Minerva, perfect; £20; offers, or exchange. —Fielding, 41, Market St., Hebden Bridge.

3½h.p. Minerva, two-speed gear, h.b. control, take sidecar; £20.—Greaves, Edward St., Oldham.

1910 Triumph, Palmer cord tyres, accessories as supplied; £44.—Darling, Sunnyside, Keighley.

REX Special, 5h.p., late 1909. 24in. wheels. R.O.M.'s back and front, fast and reliable, like new, £30.—Below.

REX, 3½h.p., late 1908, very fast, will take sidecar anywhere, better than new; £24.—Below.

REX, 3½h.p., new magneto 1910, h.b.c., spring seat, just re-enamelled and plated, Price's stand; £16.—Below.

MINERVA, 3½h.p., almost new tyres, good goer; £9. —Stanley Motor Garage, Westbrook St., Bolton.

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

ARIEL, Ariel, Ariel.—A few 2½h.p. lightweights at clearance prices, accumulator ignition; write for particulars.—Ariel Wks., Bournbrook, Birmingham.

LATE 1909 4½h.p. Minerva, spring forks, Mabon clutch, adjustable pulley, little used, condition excellent; only £37 10s.—Sibson, Bond St., Leicester.

DOUGLAS, king of lightweights, latest model, in stock; immediate delivery; get particulars from me before buying elsewhere.—Norton, ironmonger, Smithford St., Coventry.

SCOTT, 3½h.p., latest model, two-speed, water-cooled, new April, only done 350 miles, condition perfect; owner buying car; what offers?—Box No. L2,775, *The Motor Cycle* Offices, 20, Tudor St., E.C.

MINERVA, 3½h.p., torpedo tank, spring forks, studded tyres; also Quadrant, 3½h.p., studded tyres, spring fork, grand order; accept £16 10s. for either.—Brown, 12, Bull Ring, Birmingham.

1910 Triumph, free engine model, splendid condition, little used, £46; 1910 Triumph, standard model, Dunlop rubber studded tyres, practically new, £44.—Fred Heighton, Fletton Av., Peterborough.

3½h.p. Quadrant, Birmingham, practically new tyres, Mabon clutch, magneto ignition, B. and B. handle-bar control, just had new piston and rings, rebushed throughout; £18.—Halladay, Geach St., Birmingham.

1910 Triumph, new end of March, rode 1,300 miles, Cowey speedometer, headlight, separate generator, horn, spares, two valves, belt, jet, punch, plug; cost £56, first cheque over £48 secures, must sell.—Prickett, 563, Coventry Rd., Small Heath.

BUYERS of Motor Cycles should have particulars of the Osborne motor cycle, fitted with four-speed gear, with starting back wheel, Peugeot or J.A.P. engine, and wonderful spring forks, which if dashed against a stone wall whilst rider is on has no vibration.—Osborne, Princess Wks., Lincoln.

HUMBERS, Premiers, Ariels, and Royal Enfields; latest models in stock; exchanges, liberal allowances. Slightly shop-soiled Enfield, £37 10s.; 3½h.p. Ariel, £37 10s.; two-speed Humber, £45; several second-hand Clyde, magneto, £8 10s.; Rex, £7 10s.—Evans, agent, Sparkhill, Birmingham.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

1910 Bradbury, brand new, in crate; sacrifice £41 10s., offers.—47, Guildhall St., Bury St. Edmund's.

1908 3½h.p. N.S.U., magneto, in perfect order and condition; £18.—Maude Villa, Hartington Grove, Cambridge.

F.N., 1910, two-speed, shaft drive, lightweight; £28; forbidden to ride.—60, The Terrace, Bells Rd., Gorleston.

2¾h.p. Clarendon, Bosch magneto, handle-bar control; £20; exchange less power, prefer lightweight F.N.—F. Hunt, Whittlesea, Cambs.

FOR Sale, 3½h.p. Rex, m.o.v., just had engine rebushed, new valves and tappets, new tyres, belt, low seat, long handles, and h.b. control to Longuemare, very smart machine; £14 or nearest offer.—Apply, Bristowe's Garage, St. Peter's, Bedford.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

1¾h.p. N.S.U., Watawata and round belts, in perfect going order; cheap.—Herbert, Llandrindod Wells.

1910 Douglas, practically unused; cost complete over £40, what offers?—Pratt, Hazeldene, Bromsgrove.

QUADRANT, 3½h.p., Longuemare, Palmer, low, fast, and perfect, must sell; £15 10s.—6, Crosswalks, Wollescote, Stourbridge.

N.S.U., 3½h.p., latest 1909 model, good as new, not been ridden 300 miles; £30.—Fox, Boot Stores, Newbridge, Monmouthshire.

F.N., 2½h.p., two-speed, new May; £33, or exchange 1909 Triumph or 1910 Bradbury.—W. H. Hancock, Harvington, Evesham.

BARGAIN.—3h.p. Triumph, new cylinder, rebushed throughout; a bargain, £12.—Cleveland House, Church Crescent, Ebbw Vale.

TRIUMPH (1910), £49 15s., in stock; also 2½h.p. lightweight Enfield, 38 guineas; accept cheap machine in part exchange.—Passey and Hall, Ross.

N.S.U., 1910, 4h.p., two-speed, free engine, Palmer non-skid back, not ridden 100 miles, perfect, too powerful; sacrifice, £48.—Williams, Post Office, Henllan, Cardiganshire.

TRIUMPH, 3½h.p., 1907, Bosch magneto, Brown and Barlow, h.b. control, nearly new Palmer cords, Shamrock-Gloria belt, Brooks, separate generator lamp, horn, accessories, very fast; £24; no offers.—B. Hill, Brondeg, Briton Ferry.

MINERVA, 2½h.p., B. and B. carburetter, handle-bar control, tyres as new, L.M.C. variable pulley, two new accumulators, spare tube, horn, etc., thoroughly reliable, splendid hill-climber; any trial invited; £15.—Preece, Arrow House, Kington.

The Halifax Motor Exchange

Largest Rex Dealers

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

IN STOCK FOR CASH OR EXCHANGE.

"Don't write." Bring your machine and cash and we will treat you liberally

1910 New 5 h.p. Twin INDIAN	£57
1910 New 3½ h.p. REX Speed King	£42
1910 New 5 h.p. REX Speed King	£45
1910 New 3½ h.p. Tourist REX	£48
1910 New 5 h.p. Tourist REX	£51
1910 New 3½ h.p. Tourist REX, plate clutch	£54
1910 New 5 h.p. Twin REX DE LUXE	£62
3½ h.p. Two-speed BROWN, chain drive, handle starting	£25 0
1909 Two-speed Twin REX DE LUXE	£39 0
1909 5 h.p. Twin REX, spring forks	£32 10
1908 Twin Tourist REX, magneto	£26 10
5½ h.p. REX DE LUXE, clutch, handle starting, spring forks, Cantilever	£19 19
5½ h.p. Twin REX, spring forks	£16 10
1909 3½ h.p. Magneto REX	£29 10
1909 3½ h.p. REX Speed King, solied	£32 10
1909 3½ h.p. Two-stroke REX TOURIST	£29 10
1909 3½ h.p. Two-stroke REX DE LUXE, Roc clutch, two speeds, as new	£35 10
1908 3½ Magneto REX, spring forks	£24 10
4 h.p. Magneto ROC, new R.O.M. and Continental non-skids, Druid forks, H.B. control	£26 10
2¾ h.p. PHELON AND MOORE, two-speeds	£22 10
3 h.p. BROWN, spray, Watawata	£9 10
3½ h.p. ROVER, trembler coil, 26in. wheels	£13 10
3½ h.p. Magneto QUADRANT, spring forks	£24 0
3 h.p. SINGER, V belt, high tension magneto	£15 10
3½ h.p. BRADBURY, 26in. wheels	£15 10
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. ROC, magneto, clutch	£19 19
3 h.p. CLYDE, high tension magneto ignition	£14 10
3½ h.p. WERNER, spray, light and low	£13 10
3 h.p. HUMBER, spray, powerful	£10 0
3½ h.p. REX, vertical engine, 22in. frame	£9 10
2½ h.p. SINGER, trembler coil	£5 5
2½ h.p. BRADBURY, h.b. control, good order	£8 10
1½ h.p. MINERVA, wants attention	£3 10

Monster List on application.

Cash Offers and Easy Payments considered.

SPECIAL BARGAIN.

1909 5 h.p. 2-Speed REX DE LUXE and De Luxe Sidecar, with detachable fittings. Only used for demonstration purposes £46

SUNDRIES.

New 1910 de Luxe Sidecar	£5 17 6
1910 de Luxe Sidecar, used for trials only, to fit Rex	£5 0 0
New 1910 Rigid Art Cane Sidecar	£4 17 6
Motor Cycle Tubes, all sizes	6/-
New 26 × 2in. and 28 × 2½in. Clincher A Won beaded edge covers	22/-
New 26 × 2in., and 26 × 2½in. Clipper-Reflex	17/6
New 28 × 2in. and 28 × 2½in. Clipper-Reflex Covers	17/6
Special 26 × 2½in. Rubber Non-skid Covers	21/6
1909 Rex Spring Forks, with springs	19/6
1908 Rex Spring Forks, with springs	16/6
Brooks B 100 Saddle	12/6
Lycett's Large Size, new	9/6
New 1910 Amac Carburetter, variable jet	27/-
New 20-amp. Fuller Accumulator	11/-
Rex Pattern Handle-bars, plated	6/6
Swan Neck Seat-pillar	4/2
Sidecar Body, Art Cane, new	19/6
Forecar, with tyres, fit Rex or Minerva	37/6
Harrison Back Rests, new, recommended	12/6
Price's Stands for 26in. wheels	5/9
Rushmore Pattern Lamps, mirror lens	15/11
Hollow Belt Drills, the best	1/6
"Forward" Adjustable Belt Fasteners	1/6
Double Twist Horns	4/6
Three-note Horns, large size	7/11
Magneto Cut-out, special type	2/6
9 h.p. OLDSMOBILE two-seated car, late type, detachable rims	£39 10 0

Wanted, 1908 and 1909 TRIUMPHS. Cash waiting.

MOTOR BICYCLES FOR SALE.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks, Wilts, and Hants, and Channel Islands.

3½h.p. Griffon-Zedel, m.o.v., Chater-Lea, splendid condition, fast; £9.—F. Piner, Colnbrook.

QUADRANT, 3½h.p., spring forks, B100 saddle, lamp, tyres good; £12.—Ganderton, jun., Buckingham.

3½h.p. Vindec, magneto, new tyres, good condition; Sunbeam cycle part exchange.—H. Bacon, Shinfield, Reading.

3h.p. Whitley, Chater-Lea frame, re-enamelled and overhauled; trial; £12, or offer.—Narborough, 21, Broad St., Banbury.

TRIUMPH, 1910, clutch model, with sidecar, electric head lamp, and all accessories, new, and unscratched.—59, Banbury Rd., Oxford.

1910 Royal Enfield Motor Cycle, brand new; satisfactory reason for selling; £34.—Box 5,022, *The Motor Cycle* Offices, Coventry.

5-6h.p. F.N., excellent condition; would sell, or exchange for 1909 Triumph; trial given and required.—Horwood, Mortimer.

4-CYL. F.N., magneto, handle-bar control, perfect condition, little used, well cared for, spares; £28.—Pugh, Hampnett, Northleach.

3½h.p. Rex, B. and B., 1910, handle-bar control, in good going order, tyres good, l.w. accessories; £7, bargain.—Box L2,780, *The Motor Cycle* Offices, 20, Tudor St., E.C.

TRIUMPH, 3½h.p., 1907, been only 2,000 miles, tyres new, lamp, and spares, adjustable pulley, Whittle belt, just overhauled; £20.—Apply, Cross and Sons, cycle makers, Hythe Bridge St., Oxford.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

NYE'S.—1909 3½h.p. P.M. and sidecar; £45.

NYE'S.—1909 3½h.p. Zenith, with Gradua gear; £26.

NYE'S.—1909 5-6h.p. F.N., Goodrich, fine order; £27.

NYE'S.—1908 Fairy, 2¾h.p., Bosch magneto; £19.

NYE'S.—1908 N.S.U., 3½h.p., magneto; £20.

NYE'S.—1908 6h.p. Sarolea, Chater-Lea; £21.

NYE'S.—1908 Triumph, Cowey speedometer, fine order; £32.

NYE'S.—4h.p. Stevens and sidecar, variable gear; a bargain, £14.

NYE'S for Bargains, 69, Leather Lane, Holborn, London. Tel.: 6299 Holborn.

BRADBURY, 3½h.p. models, 1910; £46.—Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., the low-built machine.—Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., hold a unique record in reliability trials.—Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., the champion hill-climber.—Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., £46; liberal allowance for your old machine; get our price before ordering.—Bright and Hayles, 73, Church St., Camberwell. 'Phone 309 Brixton.

3h.p. Rex, Clincher tyres, Longuemare carburetter, Dermatine belt; bargain, £13 10s.—73, Church St., Camberwell.

MOTO-REVE.—I have a 1909 late model, unscratched; £24.—Bunting, Wealdstone.

IMMEDIATE Delivery Bradburys, Triumphs, and Moto-Reves; cash or exchange.—Bunting, Wealdstone.

5½h.p. N.S.U., magneto, handle-bar control, fine condition; £25. Also

3½h.p. Aster, all spares and accessories, good reliable machine; £10.—Staines Motor Co., Staines.

1910 3½h.p. Rex motor cycle, special value.—Friswell's, Albany St., N.W.

1910 Rex Motors, immediate delivery; advantageous cash, gradual payments, and exchange terms.—Friswell's, Albany St., N.W.

1910 Speed King, latest finish; also 5½h.p., 1909, £36.—Friswell's, Albany St., N.W.

MAGNETO Motor Cycles, five distinct models; special terms to agents; retail from £35.—Friswell's, Albany St., N.W.

SECOND-HAND Motor Cycles from £6.—Friswell's, Albany St., N.W. 'Phone, 2115 North.

1¾h.p. Minerva, just overhauled, tyres as new; £5 5s.—3, Strode Rd., Tottenham.

J.A.P., 2½h.p., in good order, low and fast; £9.—Strong, 84, Earl St., Edgware Rd.

MOTOR BICYCLES FOR SALE.

2¾h.p. Minerva, just overhauled and enamelled; £13. —Frank Whitaker, Orpington.

2¼h.p. Humber Engine, low frame, long bars; £5.—61, Ceres Rd., Plumstead, Kent.

MOTO-REVE, twin, one week from makers, perfect; £33.—159, Douglas Rd., Romford.

HUMBER, 2½h.p., Chater, low, vertical, belt drive: trial; £8 10s., bargain.—Below.

DOUGLAS, 1910, brand new; cost £45, accept £36; never ridden, spares.—Below.

TRIUMPH, 1910, Standard, Palmer tyres, uncrated; £48 10s.—8, Oppidans Mews, Chalk Farm.

HAMPSTEAD for Bargains.—Heath Street Motor Works, 5, Heath St. Tel.: 2678, P.O.

HAMPSTEAD.—3½h.p. 1910 Kerry-Abingdon, almost new; £39, with accessories.

HAMPSTEAD.—3½h.p. Triumph, 1909, splendid condition, with all accessories; bargain, £35.

HAMPSTEAD.—1910 2½h.p. two-sneed F.N.'s; £40: no extra for easy payments.

HAMPSTEAD.—1910 Rexes, all models in stock; no extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; exchange or gradual payments taken; no extra.

HAMPSTEAD.—Triumph, 1910, from stock; no waiting.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4½h.p., latest model, handle-bar control, condition splendid, with accessories; £22.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD for Moto-Reve Model A.; in stock; no waiting; no extra for easy payments.

HAMPSTEAD.—1909 3½h.p. Triumph, good condition, studded tyres; £34; all accessories.

HAMPSTEAD.—5h.p. Indian, 1910 (red), brand new; £48, cost £57.

HAMPSTEAD.—2¼h.p. brand new Zedel, No. 6 Chater-Lea low frame, incomplete; £12 15s.

HAMPSTEAD.—1910 3½h.p. two-speed Phelon and Moore, four weeks old; £50.

HAMPSTEAD for latest 1910 new 4-cyl. F.N.'s; in stock, no waiting.

HAMPSTEAD for Triumphs, in stock, new free engine models and standards, no waiting.

HAMPSTEAD.—5h.p. Vindec Special, 1908, free engine, magneto, and spring forks; £26.

HAMPSTEAD.—1910 Douglas, almost new, with all accessories; great bargain, £33.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexes, Humber, etc.; exchanges or gradual payments.—Rey, 5, Heath St. Tel.: 2678 P.O., Hampstead.

WHITTLE'S.—Roc, 4h.p., latest, magneto, h.b. control, two speeds, clutch, as new; £30.

WHITTLE'S.—Bat, 3½h.p., spring frame, almost as new; great sacrifice, £18 10s.

WHITTLE'S.—Alcyon, 4-5h.p., twin, spring forks, like new; extra cheap, £15 10s.

WHITTLE'S.—Bat-J.A.P., 6h.p., twin, spring frame and forks, splendid order; £22 10s.

WHITTLE'S.—F.N., 4½-5h.p., 4-cyl., magneto, spring forks, nearly new, unscratched; cheap, £28.

WHITTLE'S.—Moto-Reve, late model, twin, magneto, spring forks, equal new; £22 10s.

WHITTLE'S.—N.S.U., 3½h.p., magneto, extra fast, very fine order; £16 10s.

WHITTLE'S.—Bat, 3½-4h.p., spring frame; bargain, £13 10s.—Whittle's Motor Exchange, Earlsfield, Wandsworth.

3½h.p. Minerva, good order, accessories; £16; after 7.—57, Eaton Mews West Eaton Sq.

2¼h.p. Humber, exeellent condition, spares; £6 cash. —Morris, Church Rd., Leatherhead.

TRIUMPH, 1910, in stock; exchanges arranged.—Harvey, 47, South Lambeth Rd., S.W.

INDIAN, 5h.p., not to be distinguished from new; £50.—Fisher, 6a, High St., Hampstead.

BRADBURY Agent for N.W. London.—Gardner, High St., Hampstead.

5h.p. Vindec, Truffaults, Bosch, h.b.c., Cowey speedometer; £25.—84, Greenside Rd., Croydon.

DOUGLAS, 1908, in good condition; £20, or near offer.—E. G. Tyler, Sawbridgeworth, Herts.

4½h.p. Bat, Stevens engine, very powerful; £15 10s.; perfect; any trial.—Mayo, Buckhurst Hill.

£20.—Peugeot, 5-6h.p., Chater-Lea, 2½in. tyres, guaranteed perfect.—47, Camden Grove, Peckham.

TRIUMPH, free engine, new September last, all accessories; £44.—80, Cambridge St., Victoria, S.W.

Latest Bargains.

NEW MACHINES.

1910 3½ h.p. **PREMIER**, auxiliary exhaust.. £42 0
1909 3½ h.p. **REX** Tourist, shop-soiled £35 0
1909 5 h.p. **REX** Tourist, „ „ £37 0
1909 5 h.p. **REX DE LUXE**, two-speed model £48 0

SECOND-HAND BARGAINS.

3½ h.p. 1908 **REX** Tourist, a beauty £24 0
4½ h.p. four-cylinder **F.N.**, good £19 0
3½ h.p. **N.S.U.**, magneto, h.b. control £19 0
3½ h.p. 1907 **REX**, very good indeed £16 0
3½ h.p. **REX DE LUXE**, two speeds, handle starting, magneto, h.b. control..... £35 0
1908 Twin Tourist **REX**, magneto, h.b. control £26 0
5-6 h.p. **REX DE LUXE**, Roc clutch £19 0
3½ h.p. **CLYDE**, Bosch H.T. magneto £16 0
1909 Twin **REX**, special, good £35 0
Ditto, with 1910 carb. and magneto £36 0
5 h.p. 1909½ **REX**, speed model £35 0
3½ h.p. **QUADRANT**, spring forks £19 0
1908 **N.S.U.** Lightweight £19 0
5 h.p. Twin **VINOEC**, magneto, h.-b. control £25 0
6 h.p. 1909 **N.S.U.**, two speeds, magneto, h.b. control £44 0
3½ h.p. **REX**, magneto, h.b. control £16 0
5-6 h.p. Twin **PEUGEOT**, magneto, etc..... £30 0
1909 Two-speed 6 h.p. **REX DE LUXE**, only done 400 miles £44 0
5-6 h.p. Twin **REX** and Sidecar £20 0
6 h.p. Twin **REX**, Roc, two speeds £24 0
6 h.p. Twin **REX**, spring forks, 26in. wheels £16 10

£3 down secures any of these. Balance 5/- per week:
2 h.p. **QUADRANT**.. £3 | 3½ h.p. **HUMBER**.. £10
3½ h.p. 1905 **REX** .. £12 | 3½ h.p. **REX** £9

£5 down secures any of these. Balance 6/- per week:
3½ h.p. 1906 **REX** .. £14 | 3½ h.p. Mag. **REX**.. £16
3½ h.p. 1907 **REX** .. £16 | 3½ h.p. Mag. **CLYDE** £16

FARRAR'S HALIFAX SIDECARS.

Stands out alone as a genuine and good Sidecar at a popular price.

Note where the front arm grips the centre of the sidecar, and compare this design with the lob-sided and unmechanical attachment adopted by some makers.

£4 17s. 6d., complete with best tyres. Twelve months' guarantee.

CARS AND TRICARS.

5-6 h.p. **HUMBER** Tricar, open frame £26 0
8 h.p. **BEAUFORT** Car, four-seater £40 0
5½ h.p. **O.T.A.V.**, nearly new £50 0
5-6 h.p. **LITETTE** Tricar, water-cooled, Roc two-speed gear, handle starting, magneto ignition, a beautiful light tricar £35 0
5 h.p. **BRADBURY**, two speeds, handle starting..... £19 19

ODD BARGAINS.

1910 B. & B. carburetters, new £1 7 0
1910 Amac variable jet £1 7 0
4/- allowed for old carburetter.
2¾ h.p. Minerva Engine..... £2 10 0
F.R.S. Lamp, second-hand 12 6
New type Magneto Cut-outs 2 6
8 h.p. Twin Rexette Engine, two speeds..£12 0 0
Premier Magnetos, new £2 19 6
Clincher Tubes ..... post free 6 6
2 h.p. Fafnir Engine £1 10 0

WANTED!
Good Motor Cycles. Cash Waiting.

Farrar's Motories,

SQUARE ROAD, HALIFAX.

Telephone 919.

MOTOR BICYCLES FOR SALE.

3¼h.p. Excelsior, new tyres, good condition; £8 15s exchange cycle and cash.—C. West, Woking Villag

MOTOSACOCHE, 1909, 1¾h.p., accumulator; £20. Holly Mount, 81, Blackheath Hill, Londo S.E.

TRIUMPH, 2¼h.p., spare cylinder piston, 26 by Clinchers; £11; low, fast.—39, Coldharbour Lan S.E.

1906 3½h.p. Rex, with forecar, Osborne four-spe pulley; £15.—Wood, 90, High St., Berkha sted.

2h.p. Minerva, h.b. control, torpedo tank, perfect co dition; £10, near offer.—41, Grove Lane, Cambe well.

2¾h.p. Kerry, accumulator ignition; only wants tu ing; what offers?—Chubb, Brighton Rd., Ho sham.

4-CYL. 4½h.p. F.N., with 1910 fitments, Bosch, pe fect condition; £23.—76, Mill Lane, W. Ham stead.

3½h.p. Ariel, Brown-Barlow, 26in. Dunlops, Derm tine; £7; after 7.—50, Priory Park Rd., Ki burn.

3½h.p. Peugeot, splendid condition, accessories; twent miles trial; £15.—Chagford House, West Ken sington.

3h.p. Fafnir, Chater-Lea frame, long, low, an trembler; sacrifice, £13.—11, Zampa Rd., Ber mondsey.

LIGHTWEIGHT, 2½h.p. Rex, magneto, new condi tion, 1910 Amac, Druids; £16.—5, Brooksby St Islington.

3½h.p. Centaur, perfect in every detail; very cheap speed hub cycle as part.—A.G., 12, Khartoum Rd., Ilford.

LADY'S Motosacoche, magneto, spares, lamp, almos new; £30; buying tricar.—1, Burrard Rd., wes Hampstead.

2¾h.p. Motor Cycle, very smart and low; £8 10s. or offer.—Marshall, 5, Station Rd., Edgware Middlesex.

3½h.p. Chain Drive Humber, in thorough runnin order; £9 10s.—Rawlinson, 32, Alwyne Rd. Canonbury.

F.N., 2½h.p., good order, spring forks, h.b. control, foot rests; owner bought car.—13, Rockfield Av., Mus well Hill, N.

KRATOS, 2½h.p., water-cooled, long bars, very low and reliable; £8.—Smith, 68, Havent Rd., Wood St. Walthamstow.

£8, bargain.—2¾h.p. Minerva, Palmer tyres, long handles, good condition.—May, Electricity Works Leatherhead.

£6.—Singer, 2½h.p., magneto, open wheel, Longue mare, splendid condition, low, tyres good.—38, Peckham Rye.

3½h.p. Minerva, not ridden 100 miles, handsome finish; sell or exchange Phœnix Coh.—Knight, Maypole House, Bexley, S.E.

MINERVA, 2½h.p., good condition, reliable machine spare belt, tyre, pulley, etc., genuine; £7.—Clark, Crawley Rd., Leyton.

3½h.p. Sprung Frame Bat, Continentals, Michelin tyres; must sell; 15 guineas, or offer.—9, Whittaker Rd., Upton Park.

TRIUMPH Style, 2¾h.p. Brown, h.b. control, Amac, spring forks, perfect machine; £15.—63, New Fillebrook Rd., Leytonstone.

1910 Rex de Luxe, practically new; offers wanted, or exchange twin.—Box No. 5,020, *The Motor Cycle* Offices, Coventry.

EAGLES.—N.S.U., 4h.p., twin, latest 1910 model, Bosch magneto, M.O. valves, two-speed gear and free engine, slightly used; £44.

EAGLES.—3½h.p. M.M.C., Chater-Lea, spring forks, B. and B. carburetter, handle-bar control, excellent condition; £13 10s.

EAGLES.—Motosacoche, 1909, Bosch magneto, Druid spring forks, free engine; £19 10s.

EAGLES.—Motosacoche, 1908, accumulator ignition, perfect condition; £13 10s.

EAGLES.—Indian, 5h.p., 1910 twin, Bosch magneto, Indian red finish; £42, as new.

EAGLES.—N.S.U. 2½h.p. Twin Lightweight, 1909, Bosch magneto, M.O. valves, under-geared pulley, only ridden 100 miles; £27 10s.

EAGLES.—N.S.U., 3½h.p., magneto, spring forks, two-speed gear and free engine; £20.

EAGLES.—J.A.P., 2½h.p., Chater-Lea fittings, inclined engine, 26 by 2in. Peter Union tyres; £7 10s.

EAGLES.—Any of the above can be had on approval, deposit.

EAGLES.—We have a few brand new N.S.U.'s just delivered, finished in latest style; 3h.p., £25; 3½h.p., £31; 6h.p. twins, £40; two-speed gears, £5 15s extra; exchanges entertained; deferred payments; inspection invited.

EAGLES and Co., High St., Acton.—N.S.U. West London District Agency, 1910 models from stock, liberal allowances for machines in part payment. Tel.: 556 Chiswick.

In answering these advertisements it is desirable to mention "The Motor Cycle."

MOTOR BICYCLES FOR SALE.

HUMBER, 3h.p., chain driven, new cover, just overhauled, perfect; trial; £10.—Mitcham, 26, Rockbourne Rd., Forest Hill.

SEVERAL Cheap Reliable Motor Cycles for sale.—Write for list to R. M. Pullman and Bros., London Rd., Norbury, London.

MOTOR Cycles by extended payment without extra charge.—Write particulars, Taylors, 21a, Store St., Tottenham Court Rd., W.C.

5-6h.p. J.A.P., 1910 Amac, R.O.M. back, Bosch, just been overhauled; £23. — Pensency, Breakspear, Brockley Rd., Brockley, S.E.

BARGAIN.—2h.p. Universal, Longuemare, Price's stand Whittle belt, good going order; £5 10s. — Hayes, 130, Plaistow Rd., E.

2¼h.p. Royal Enfield Motor Cycle, Minerva engine, tyres good, in running order; £6.—Holtom, 28, Overton Rd., Brixton, S.W.

REX, 3½h.p., handle-bar control, tyres nearly new, Michelin, studded Clincher, perfect condition; £8 15s.—146, Haig Rd., Plaistow.

£6 10s., Bargain.—2h.p., long bars, splendid order, Palmers as new; bring cash and ride it away.—35 Acacia Rd., Wood Green.

4h.p. Antoine, just overhauled thoroughly, Whittle, footboards, splendid running order; £11.—Boltz, 21, Ashbridge Rd., Leytonstone.

3h.p. Givaudan, m.o.v., low, Longuemare, spring forks, long bars, good tyres and belt, reliable; £9 10s., or offer.—48a, Isis St., Earlsfield.

1¾h.p. F.N. Lightweight, new October, 1909, good condition, spares, kit; £16.—Lamb, Woodlands, Kingston Hill, Kingston-on-Thames.

3½h.p. Triumph, magneto, handle-bar control, Clincher studded tyre, lamp, horn, and spares, complete; £32 10s.—Stow, Mile End, Colchester.

T.T. Triumph, 1910, and other models in stock; second-hand machines taken in part payment.—Stamford Hill Motor Co., 128, High Rd., Tottenham.

BRADBURY, 1910, free engine and roadster models in stock; second-hand machines taken in part payment; cash or terms.—Stamford Hill Motor Co., 128, High Rd., Tottenham.

HUMBER 1910 two-speed and roadster models in stock; second-hand machines taken in part payment; cash or terms.—Stamford Hill Motor Co., 128, High Rd., Tottenham.

F.N., 4-cyl., magneto, spring forks, just overhauled, in excellent order; £23.—128, High Rd., Tottenham.

2¾h.p. M.M.C., low built, 2½ tyres, smart machine, guaranteed; £12.—128, High Rd., Tottenham.

4½h.p. Twin Minerva, m.o.v., spring forks, powerful sidecar machine, ready for road.—Cheap (private sale) at Wauchope's, Shoe Lane, London.

1909 Humber, 3½h.p., two speeds, clutch, brand new; owner abroad; must sell; £30, or offer.—Kingsford, Buckingham House, Brockley Park, S.E.

3h.p. Triumph, magneto, good tyres, studded back, spring forks, standard model, in perfect running order; 19 guineas.—23, Claremont Rd., Ilford.

MINERVA, 3½h.p., condition perfect, 1910 B. and B. carburetter, new belt, new coil, tyres equal new; £17 10s., offers.—88, George St., Croydon.

QUADRANT, 3h.p., tyres perfect, Longuemare carburetter, capable of taking sidecar; bargain, £9 10s.—Goodwin, 246, Coldharbour Lane, Brixton.

MOTO-Reve, 2h.p., standard specification, magneto, footrests, stand, Druid forks, not done 500 miles; £16.—Hardy, 25, Endsleigh Gardens, Ilford.

3½h.p. 1909 Fafnir, Bosch magneto, Brown-Barlow, handle-bar control, Drnid forks, very low built.—Tel.: 7646 Wall. Wood, 33, Cornhill, London.

3h.p. Humber, free engine, chain drive, excellent condition, just rebushed, new Palmers, 26in.; sacrifice, £7 10s.—B., Wentworth, East Finchley.

MOTOR Cycle, 2¾h.p., Brown engine, Amac carburetter, h.b. control, Palmer cord tyres, new condition; price £15.—J. W. Jenkins, Lancaster Rd., Enfield.

TRIUMPH, 1909, free engine, Autoclipse, Clincher studded, Rich tubes, only ridden 1,500 miles, as new; £43.—Batchelor, 46, London Rd., St. Albans.

3½h.p. Auto Motor, good condition, nearly new Palmers; £14; must sell; change of business.—Barnard, 45, Playfield Crescent, East Dulwich, S.E.

2¼h.p. Quadrant, upright engine, Longuemare carburetter, engine and tyres perfect, plating, enamelling new.—H. Dawson, Ferry Rd., Teddington.

2½h.p. Low Lightweight Minerva, newly enamelled French grey, lined out blue and gold, good going order; £8 15s.—Barrett, 332, High St., Manor Park.

TRIUMPH, March, 1909, condition perfect, all equipment, lamps, generator, spares, and tools complete; £36.—Letters, Smith, 52, Broad St., Ratcliff, London.

2½h.p. J.A.P., perfect running order, long handles, low saddle, new belt, pulley, and back tyre, spare accumulator and belt; £8.—101, Camberwell New Rd., S.E.

T.T. Triumph, 1910, not ridden 100 miles, Autoclipse lamp, horn, etc., bought new 19th May; price £42.—Miller, 44, Longfield St., Wandsworth, S.W.

WE ARE THE PEOPLE for RIGHT PRICES AND PROMPT DEALS.

THE PRICE IS UP

BUT QUALITY'S RIGHT.

TYRES (Best Makes).

Particulars on Application.

	Covers.	Tubes.		Covers.	Tubes.
26 × 2in.	17/6	6/3	28 × 2in.	17/6	6/3
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26 × 2in., 28/11 26 × 2¼in., 35/-

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26 × 2in., 14/6 28 × 2in., 14/-

SELECTION from our STOCK of MACHINES.

1908 4 h.p. ROC, new non-skids, rim belt	£28 10
1907 4 h.p. ROC, clutch, etc.	£24 0
1909 3½ REX de LUXE two-speed etc.	£36 15
REX 1909 Twin Tourist, low, very good	£32 10
REX 1909 3½ h.p. Tourist	£29 10
REX 1909 Speed King	£32 10
REX 1908 Twin, very speedy	£27 10
N.S.U. 3½ h.p., magneto, Mabon clutch	£22 0
REX 1907 Twin	£16 0
BROWN, 3½ h.p., two-speed and free, M.O.V., good	£25 0
N.S.U. 3½ 1908 magneto, H.B. control	
P. & M., 2¾ h.p., two-speed, very low	£22 0
CLYDE, 3 h.p. magneto, very cheap	£13 15
BROWN, 3 h.p., special engine	£10 10
ROVER, 3½ h.p., M.O.V., spring forks	£13 15
BRADBURY, 3 h.p., well and hearty	£15 5
MINERVA, 2 h.p., wants a home	£8 15
ANTOINE, 2¾ h.p. very good condition	£8 10

Now in £57 5 H.P. TWIN INDIAN Stock

CLYDE, 3 h.p., magneto, M.O.V.	£15 0
SINGER, 3 h.p., magneto, good belt drive model	£16 10
REX, 3⅜ Genuine, 1906 M.O.V. etc.	£15 0
HUMBER, 3 h.p., clutch, 26in. wheels	£12 10
BRADBURY, 3 h.p., extra good	£14 0
2¾ h.p. MINERVA, good order,	£11 15
BARTER 2½ h.p. requires attention	£6 0

EXCHANGES AND CREDIT.
CASH OFFERS CONSIDERED.

BELTS! NOTE PRICE. Large stock of Continental Belting. ¾in., 1/4,—1in. 1/7,—1⅛in. 1/9, 1in. 2/- per foot. 1½in., 2/4 per foot.

LARGE STOCK OF LAMPS (from 7/6, separate generator.)

DOUBLE TWIST HORNS (5/3), 3-note (7/11), and a LOT of other things.

BUT SEND FOR LIST OF SUNDRIES.

Collier's Motories,
WESTGATE, HALIFAX.

MOTOR BICYCLES FOR SALE.

CRIPPS Cycle and Motor Co., 24-28, Woodford Rd., Forest Gate, London, E., have the following machines, all guaranteed; exchanges on any model.

1½h.p. Magneto Motosacoche, late 1909, in splendid order, very light, used less than 1,000 miles; £23.

MOTOSACOCHE, 1908, accumulator model, used for demonstrations, in grand condition; £18.

1¾h.p. Lightweight F.N., magneto, geared pulley, run less than 1,000 miles; £20.

4½h.p. Minerva, 1908, accumulator model, very low, footboards, £20; forecar for same, £4.

3½h.p. Rover, with art cane forecar attachment, all in excellent running order and condition; £15.

3½h.p. Peugeot, engine new last August, had very little use, low, short frame, £16; forecar for same, £4.

SEVERAL Other Machines at prices from £6; any type of machine built to customers' own requirements; look out shortly for our announcement of a 2½h.p. J.A.P. lightweight model weighing about 90 lbs., 6h.p. w.c. engine, 95 by 110, £9.

2¾h.p. F.N., chain drive, friction clutch, spare chain and tube lamp, tools, stand, etc., in perfect running order; £10, or offer.—"Perryfield," Wilmington, Kent.

3½h.p. Brown, good engine and fast, inner tube, belt, lamp, accumulator, coil, and two brakes, all new; £12, or offer, must sell.—Watson, 3, Upper George St., W.

IF You Want Bargains in second-hand motor cycles, you can get them at Wauchope's.—Wauchope's, 9, Shoe Lane, Fleet St., London, E.C., just off Ludgate Circus.

3h.p. Singer, belt driven, h.t. magneto, h.b. control, in good running order, nearly new back tyre; £15; appointment.—George, 21, York House, Highbury Crescent, N.

MOTOSACOCHE, 1908, accumulator model little used, most reliable machine; £16 10s.—Particulars, approval, Manager, Spawn Co., Albion Wks., Hammersmith.

HUMBER-DE DION, 3½h.p., 1909, Amac, h.b.c., Continental belt, new R.O.M. adjustable pulley, all accessories, long, low, and grey; £14.—Parker, 34, Chantry Rd., Brixton.

4½h.p. Minerva Twin, B. and B. carburetter, handle-bar control, adjustable pulley, torpedo tank, 1908 model; £20.—Purdie, 211, High St., Deptford, London, S.E.

£6.—A splendid 3½h.p. Rex for sale, good tyres, spray, very powerful, wants accumulator; sold cheap for quick sale; private owner.—At 544, Caledonian Rd., N.

3½h.p. Quadrant, splendid condition, Amac 1910 carburetter, h.b.c., and brand new sidecar, Palmer cord and Clincher tyres; bargain, £17 10s.—61, London Rd., Twickenham.

KERRY, 3½h.p., Longuemare, Shamrock, R.O.M. back tyre, Clincher front, splendid condition; trial; bargain, £14.—Ingram, Craig Millar, Grove Rd., South Woodford, Essex.

3½h.p. 1908 Brown, first-class condition, new non-skid, all accessories, powerful headlight, etc.; 12 guineas, worth more; giving up.—17, Cranmer Rd., N. Brixton.

2¾h.p. Brown, good condition, tyres excellent, recently overhauled and enamelled, all accessories; £10; trial by appointment.—F. Moyse, 16, Napier Rd., College Park, London.

1909 2½h.p. Ariel Lightweight, magneto, 1910 B. and B., h.b. control, very fast, excellent hill-climber, new condition; sacrifice, £22.—Emelie, 252, High Rd., Streatham.

TRIUMPH, 3½h.p., 1907-8, little used, handle-bar control, Mabon clutch, new rubber-studded Clincher tyres, new belt, suitable for sidecar; bargain, £28.—154 Rusthall Av., Chiswick.

5h.p. Griffon, twin, Zedel engine, Zedel carburetter, spring forks, magneto, cooling fan, large Bleriot headlight and separate generator; £25.—14, Keetons Rd., Bermondsey, S.E.

3h.p. Quadrant, surface, new cylinder and piston, Advance pulley, Shamrock belt, Palmers, good running order, quiet; £8 10s.—Seen, Scoggins, opposite Gunnersbury Station.

ARIEL, 3½h.p., spring forks, long bars, low saddle Stanley-Dermafine belt, Brooks saddle, large head lamp, perfect; £12 12s.; seen by appointment.—Smith, 10, Melrose Av., Mitcham.

BAT, spring frame, genuine De Dion engine, 2¾h.p., good order, will deliver free by road anywhere within 50 miles; bargain, £15 15s.—Motor Cyclist, 168, Wandsworth Rd., S.W.

TRIUMPH, 3h.p., spring forks, in splendid order, Clincher studded back tyre, £15; 2h.p. Bradbury, been well cared for, new Continental cover, runs well, £8.—Barker, Oxford Rd., Worthing.

3h.p. Pebok, torpedo tanks, adjustable pulley, Palmers, overhauled, plated, enamelled, footboards, accessories, very fast, smart, only wants seeing; must sell, doctor's orders; nearest £15.—G., 37, St. Quintin Av., W.

MOTOR BICYCLES FOR SALE.

1909 Rex de Luxe, 5h.p., two-speed machine, perfect, no trouble, splendid condition; £35; Millford £14 14s. castor wheel sidecar, £7, bargain.—13, Winton Av., Westcliff-on-Sea.

CALVERT. 2¼h.p., low seat, long handle-bars, sideboards, fast and reliable; £8; offers wanted for 2h.p. Singer engine, in wheel, in running order.—Newitt, 69, Cornwallis Rd., Walthamstow.

CROYDON.—Kerry-Abingdon, this famous machine in stock for immediate delivery; your old machine taken part payment; second-hands wanted of all makes.—Central Motor Co., Croydon.

6h.p. J.A.P., gear driven, magneto, No. 6 Chater, Druids, Amac, Cowey speedometer, new condition; £35, exchange P. and M. or Triumph.—Matthews, Pawnbroker, London Rd., Croydon.

3h.p. Hobart, Prested accumulator, coil, plugs, Longuemare, Palmers, Clincher tyres, B100 saddle, carrier, stand, horn, just overhauled; nearest £10.—Apply, Belmont, Foxley Lane, Purley.

TRIUMPH, 1906-7, in perfect condition; owner spent £9 in overhauling, including new carburetter, belt, lamp, horn, etc.; £25, or offer; seen by appointment.—B., 3, Ranelagh Mansions, New King's Rd., Fulham.

4h.p. Excelsior Motor Cycle, good condition, spares; what offers?—Pyner, 61, Godinton Rd., Ashford.

3h.p. Quadrant, splendid going order, good tyres, complete; £9.—107, Gilmore Rd., Lewisham.

2¾h.p. Minerva, spring forks, perfect condition, nearly new, Model de Course and Goodrich tyres, speedometer, many spares, guaranteed; £15, or exchange entertained.—Woodger, Dewar St., Peckham Rye, London.

BAT.—6-7h.p. famous Bat motor cycle, Bosch magneto, Palmer tyres, drip oil feed, tools, and spares, not ridden 500 miles; cost £62, as new, £35 cash, lowest.—Adams, 4, Courtfield Gardens, West Ealing, London.

A Great Chance.—3½h.p. Fafnir, Chater-Lea throughout, in perfect condition, h.b.c., new battery, complete except covers; best offer accepted, as owner mustn't ride.—Motorist, 587, Seven Sisters Rd., Tottenham.

TRIUMPH, 3½h.p., 1909, in perfect order and repair, £33; new Enfield lightweights in stock, trials given, exchanges arranged; 1910 Premiers in stock for immediate delivery.—Batchelor, 36, Clarence St., Kingston.

7-9h.p. Bat-J.A.P., magneto and accumulator ignitions, h.b. control, beautifully fitted up, guaranteed in perfect order, lots of spares, geared 3-1, a mover; £45.—Jermy, Leighton Holme, Frimley Green, Surrey.

3½h.p. Bat, spring frame, just overhauled, re-enamelled grey, new Clincher studded back, Palmer cord front, new belt, two accumulators, tools; a beauty, £18; Fridays and Tuesdays after 7.—30, Dareuth Rd., Stamford Hill, N.

MINERVA, 2¾h.p., rebushed throughout, Chater-Lea fittings, new Stanley belt, new accumulator, Palmer cords, new back, long bars, low, wants stand, brake, perfect condition; must sell, £8.—88, Louisville Rd., Balham.

1910 Rex, 3½h.p., two-speed, free engine, handle starting, spring forks, Cantilever seat, Continental tyres 2¼in., lamp, horn, all accessories, guaranteed; any trial; new in April; £57.—G. Skinner, 35, Holbrook Rd., Plaistow, E.

3½h.p. T.T. J.A.P., No. 6 Chater, h.b.c. Amac, new Palmer cords, J.A.P. automatic lubrication, hand brake, tubular carrier, compression, bearings perfect, 45 m.p.h., splendid condition; any trial; £20.—E. Hoare, 10, Hillmarton Rd, N.

TRIUMPH, 3½h.p., 1910, free engine, clutch, Palmer cord, non-slip, spare Dunlop inner tubes, horn, lamp, accessories, purchased May; cost £60; hardly used, in perfect condition; £53 cash, or near offer.—Bailey 17, St. Saviour's Rd., St. Leonard's-on-Sea.

PREMIER, 1910, 3½h.p., T.T. machine, not ridden 50 miles, genuine touring machine, but too powerful for present owner; cost £52 10s., what offers? good light single-cyl. entertained part exchange.—Motor Cyclist, 110, Clonmore St., Southfields, S.W.

1909½ 4-cyl. F.N., perfect condition, h.b. control Bosch magneto, R.O.M. tyres, two generators, lamp, tools, spares, etc., two spare Englebert outer covers; must be sold, doctor's orders; take £35, cost £60.—Apply, H. G. Monk, Manchester House, Godalming.

TRIUMPH, 3h.p., spring forks, 1910 B. and B. handle-bar control, good tyres, new coil and contacts, headlight, horn, stand, carrier, and all accessories, good reason for selling; trial any time; nearest to £18 secures.—A. Russell, The Creamery, Leatherhead.

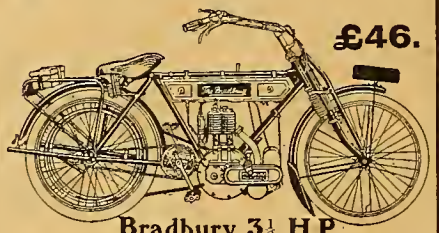
WERNER, 1¾h.p., low frame, 26 by 2 wheels, new Camel belt, adjustable pulley, engine rebushed, only wants adjusting, F.N. carburetter; £6 10s., or would exchange with large concert talking machine which takes 20in. discs for more up-to-date motor bike.—Millward, 20, Hesper Mews, Earl's Court Rd., London.

BARGAIN.—1909 5-7h.p. Chater-Lea twin, Bosch magneto, special low frame, French grey, long handle-bars, brass Davison torpedo tank, Amac carburetter (bar control), new 26 by 2¼ Palmer cords, variable pulley, footboards, tool boxes combined, all accessories; £23 lot.—Nunn, 53, Mandeville Rd., Enfield Wash.

London to Edinburgh TRIAL.

Success of the

BRADBURY



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Bradbury 3½ H.P.

Only Six Riders of the Bradbury entered, but they were all successful, and have been awarded

6 GOLD MEDALS.

Six Riders, Six Gold Medals, cannot be surpassed.

Manx Motor Meet.

At the above meeting Bradburys repeated their 1909 success. **In Class 2A, for Standard Touring Motors,** they were **First, Second,** and **Third.**

RECENT SUCCESSES:

JUNE 9th.—WESTMORLAND MOTOR C.C. HILL CLIMB:

1st Fastest Time, Mr. H. Harrison.
2nd, Mr. R. Hutchinson.

These two riders were First and Second in the same club's Hill Climb on May 27th.

JUNE 11th.—MANCHESTER M.C. HILL CLIMB, SINGLE-CYLINDER CLASS:

Fastest Time, Mr. P. Platt.

JUNE 11th—NORTH-WEST LONDON M.C.C. HILL CLIMB, CLASS 2:

1st Fastest Time of Day, Mr. W. Cooper.

JUNE 12th—WALTHAMSTOW M.C.C. 100 MILES RELIABILITY TRIAL NON-STOP RUN:

Gold Medal, Mr. W. Cooper.
Gold Medal, Mr. A. T. Stanton.

—o—

Catalogue and Name of Agent on application to

BRADBURY & Co. Ltd.

Wellington Works, OLDHAM.

MOTOR BICYCLES FOR SALE

£32.—6h.p. 4-cyl. F.N., 1909, handle-bar cont two-speed gear, footboards, Lucas King lai R.O.M. back, runs splendidly, all accessories, spa bought 1910 model.—H.M., Heathdown, Hampst Heath.

DOUGLAS, 1910, brand new last fortnight, perf not ridden 50 miles, unpunctured, exceptio climber; excellent reason; lamp, horn, accessories, e cost over £41, absolutely as new, £37; inspection appointment.—Powell, 32, Heath Hurst Rd., Han stead.

PHELON and Moore, May, 1909, 3½h.p., complet overhauled for London-Edinburgh run, g medal, two Autoclipse, Powell and Hanmer, two gene tors, Glare and accumulator in leather case, alm new R.O.M.'s on both wheels, spare Clincher and inn watch, tube carrier, complete spares and accesso getting car; £43 cash.—Byng, 39, Fitzjohn's A Hampstead.

TWIN Minerva, 4½h.p., good order, complete, £ 15s.; 2¾h.p. Chater-Lea-Minerva, splendid ord all accessories, £8 10s.; 2¾h.p. Ariel-Minerva, splend order, spring fork, £7 10s.; 3½h.p. Bex, tyres nearly ne a bargain, £7 10s.; 12-14h.p. Dennis car, 2-cyl., tonne exchange modern Triumph, or 4-cyl. F.N., sell £35; 19 Enfields and Triumphs in stock.—Wilton Cycle and Mot Co., 110, Wilton Rd., Victoria.

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

R.O.C., 4h.p., two speed, free engine, Bosch, Palm non-skids, spring forks; £28.—Cornish, Crediton.

TRIUMPH, 1910, new, free engine, in stock, li price; Triumph, 1909, slightly second-hand, £40. Helman and Sons, Penzance.

N.S.U., 4h.p., single-cyl., model de luxe, as ne not done 100 miles, 1910 model; approval; £38. Reynolds, Broadwey, Dorset.

5-6h.p. Vindec Special Twin, magneto, h.b. contro Truffault spring forks, Amac carburetter; bargai £25.—Hockey, Hornsbury, Chard.

N.S.U., 3½h.p., magneto, perfect running order. Pete Union tyres, tubes unpunctured, numerous refin ments costing £5; great bargain. £15 15s.—Miller, Re lands, Weymouth.

A BARGAIN.—3½h.p. Excelsior, low seat, fast o hills, overhauled; owned by engineer; splendi condition, tyres as new, new accumulator; £12, or goo exchange preferred.—F. Edwards, Garage, Torquay.

SECTION X.

Scotland.

2¼h.p. F.N., 1910 model, two-speed, new; £31. Forrester, 33, Vicar St., Falkirk.

BRADBURY, 3½h.p., good condition, reliable, 190 model, tools; offers.—Apply for particulars, View field, Carluke.

2¾h.p. Pebok, light, low, splendid order; £10, or ex change with cash for light quad or tricar.—Whyte, Victoria Rd., Maud.

3½h.p. Rex, 1907, magneto, Brown and Barlow, handle bar control, new Continental belt, in perfect order; must sell; £16.—M. Stirling, 14, Ashley Terrace, Edinburgh.

REILLY for Bargains.—3½h.p. Centaur, belt drive, low, fast, spleudid order, guaranteed, £15; 3½h.p. Coronet, powerful machine, Druids, £14 10s.; 4h.p. engine, suit tricar, £4 10s.; tricar frame and wheels, three speeds and free engine, £5 5s.—Reilly's Motor Depot, 92, Hilltown, Dundee.

SCOTLAND'S Largest Motor Cycle Firm.—Rex, V.S., Indian, Moto-Reve, Phelon and Moore, Zenith, Douglas, Roc, Griffon; we stock all these, and can supply any other make.—Alexander's Motor Exchange, Lothian Rd., Edinburgh.

SPECIAL Bargains in powerful motor cycles for sidecar work this week! Call or send at once for list; they are going quickly. Here are a few: 5h.p. Rex, three, to clear, £22 to £25; 5h.p. G.B., £23; 5h.p. Griffon, £24; 5h.p. Norton, £30; 5-6h.p. 4-cyl. F.N., £32; 5h.p. V.S., £33; 8h.p. Roc, with forecar, £35; 5h.p. 1910 Indian, good as new, £43 10s.—Many others to clear at Scotland's largest dealers, Alexander's Motor Exchange, 110, Lothian Rd., Edinburgh.

TRICARS FOR SALE.

10h.p. Lagonda, in grand order; trial with pleasure; £30.—Bunting, Wealdstone.

4h.p. Antoine, very fast and powerful, good condition, nearest £12.—52, Perry Hill, Catford.

3½h.p. Excelsior Tricar, good condition; bargain, £9 —36, Hurlingham Rd., Fulham, S.W.

3½h.p. Fafnir Tricar, clutch; £10; exchange moto cycle.—20, Potternewton Lane, Leeds.

TRICAR, Kelecom, 4h.p., coach-built body; bargain £14 10s.—12, Bull Ring, Birmingham.

TRICAR, Free Engine, two-speed, splendid condi tion; £18.—74, Lady Margaret Rd., N.

TRICAR, 6h.p., coach body, Palmers, good order; £20 or motor cycle and cash.—160, Church Lane, Smethwick.

EXCHANGE, Lady's Royal Cycle, brand new, fo good 3½h.p. engine.—Carter, 283, Tiverton Rd. Bournbrook.

THE MOTOR CYCLE

Vol. 8. No. 379. June 30th, 1910.

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ADDRESS—20, TUDOR STREET, LONDON, E.C.

THE MOTOR CYCLE SHOW AT OLYMPIA.

AN INTERVIEW WITH THE SECRETARY, MR. ALFRED BEDNELL.

THE first International Cycle, Motor Cycle, and Accessories Exhibition will be held by the Cycle and Motor Cycle Manufacturers' and Traders' Union, Ltd., on Monday, November 21st, to Saturday, November 26th, both days inclusive.

Having heard that numerous motor cycle firms have booked space for this exhibition, we took an early opportunity last week of interviewing the secretary, Mr. A. Bednell.

"We hear you have been very successful, Mr. Bednell, in regard to the applications for space at Olympia?"

"Yes, practically every important firm in the trade will exhibit, and every inch of space has been applied for. For weeks past I have been engaged in the organisation of details. Here is a list of exhibitors. Thirty-eight firms will show motor cycles only, thirteen will show both motor cycles and pedal cycles, and twenty-two firms bicycles only."

"What about accessories?"

"The whole of the accessory firms will be situated in the gallery with the exception of the tyre companies, who will occupy, in conjunction with the press, two lines of stands, one on each side of the hall. Only firms engaged in the motor cycle and cycle trade will be allowed to exhibit, as it is the committee's desire to raise the tone of the exhibition and make it one which will impress visitors the moment they enter as a collection of exhibits by those engaged in an important industry. Side shows on the part of those not engaged in the trade will be rigidly excluded."

"You have perhaps read, Mr. Bednell, that *The Motor Cycle* has urged the importance of classifying the exhibits as much as possible, and has particularly pointed out from time to time that it is desirable that the motor cycle exhibits should form a separate section of the Show?"

"Yes, I have, and it is one of the items I have brought before my committee, and if it is possible to do so it is our intention to arrange the stands in such a way that there will be two lines of stands of complete motor cycles and three lines of stands of pedal bicycles arranged alternately. In this way a visitor who is only interested in the motor cycle exhibits will be able to inspect both sides of rows two and four without bothering about the other stands."

"Will exhibitors at the Olympia Show be allowed to exhibit elsewhere?"

"No, certainly not. One of the conditions in regard to the allotment of space is that no exhibitor must exhibit or sanction the exhibition of his goods at any other cycle show in London or within a radius of twenty miles thereof during 1910."

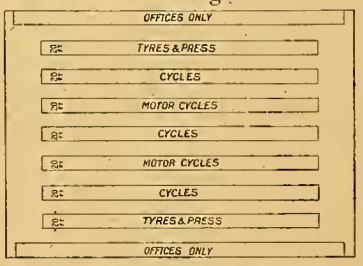
"Will any arrangements be made for trial runs?"

"Anything that can be done to further the business side of the exhibition will receive the serious attention of the committee, and I see no objection to firms who are exhibiting motor cycles having machines outside the building if they wish to give trial runs to prospective purchasers. Proper arrangements can, of course, be made for passing visitors in and out of the exhibition when they desire to make a trial of any particular model on view, and the machines can be parked in the open spaces near the Hammersmith Road entrance, where the trial cars are always lined up at the Olympia car show."

The Olympia Show.—

"Is there any other information which you think would be of interest to our readers?"

"Yes, I think so. Posters advertising the exhibition will be exhibited at every railway station in Great Britain and Ireland, and these posters will make it clear that motor cycles form a very large and important section of the Show. By this means we hope to draw riders of motor cycles from all parts of the kingdom to Olympia in November next."



Rough plan of The Cycle and Motor Cycle Show at Olympia, showing proposed arrangement of stands. Each stand is 20 feet wide, and no offices will be permitted to be erected except at the sides of the building.

"We presume that motor cycle manufacturers are represented on your show management committee?"

"Certainly. Mr. W. Williamson (Rex Motor Mfg. Co.), Mr. W. H. Wells (Hendee Motor Mfg Co.), and Mr. W. Pratt (Phelon and Moore, Ltd.) are members of the executive, and represent the purely motor cycle makers as distinguished from those who represent manufacturers of pedal bicycles as well as motor cycles."

Following is a list of firms making motor cycles who have actually booked space, and above is a rough plan of the exhibition which will give our readers an idea of how the Olympia Cycle and Motor Cycle Exhibition will probably be arranged:

Manufacturers of complete motor cycles who have booked space at Olympia:

Alldays and Onions.
Arno Motor Co.
Auto-Carriers, Ltd.
Bat Motor Mfg. Co.
Bayliss, Thomas and Co.
Bradbury and Co., Ltd.
Centaur Cycle Co., Ltd.
Collier and Sons.
Components, Ltd. (Ariel Dept.)
Douglas Bros.
Enfield Cycle Co., Ltd.
Grandex Motor Co.
Green's Patent Motor Syndicate.
Hendee Mfg. Co.
Hobart Bird and Co.
Humber, Ltd.
Lloyd Motor Co.
Moto-Rêve Co.
Motosacoche, Ltd.
Norton Mfg. Co.
N.S.U. Motors, Ltd.
Nye and Co.
Phelon and Moore, Ltd.
Premier Motor Co., Ltd.
Premier Cycle Co., Ltd.
Rex Motor Mfg. Co., Ltd.
Scott Engineering Co., Ltd.
Service Co., Ltd.
Singer and Co., Ltd.
Triumph Cycle Co., Ltd.
V.S. Motor Co.
Wall, A. W., Ltd.
Wilkinson Sword Co.
Wolf Engineering Co.
Zenith Motors, Ltd.

The Stanley Show.

In response to an enquiry addressed to Mr. E. A. Lamb, the secretary of the Stanley Show, the following letter has been received: "In reply to the letter, at present I am unable to send you the names of the firms exhibiting in the forthcoming Stanley Show, or any special information, beyond this, that we have a fair number of exhibitors, and, as far as I can see, we shall have a fairly good exhibition. Thanking you for your interest in the matter."

SURVIVORS IN THE LEEDS M.C.C. RUN TO LONDON AND BACK. SEE PAGE 585 OF OUR LAST ISSUE.

The first two arrivals at the finish, John-o'-Gaunt's. (N.S.U. and Peugeot machines.)

Five competitors who qualified for gold medals

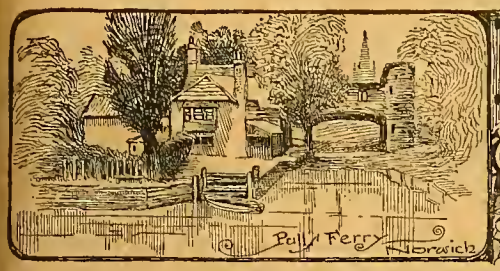
A successful competitor driving a 3½ h.p. Triumph and sidecar.

A RESILIENT STUD TYRE.

A REPRESENTATIVE of Messrs. Brettel, Wanklin, and Co., Regent Works, Walsall, recently submitted a motor bicycle to us for a short trial run fitted with the Cairns stud tyre. This tyre is built up with a number of hollow rubber studs secured to a steel band, which encircles the rim and can be removed bodily with the studs in position by undoing eight bolts. Each hollow stud has flat sides and a rounded grooved tread, the base being formed with a lip which passes through holes in the band. After the studs have been placed in position they are locked by a cap, which holds the stud in position, and also acts as an air retainer when the weight of the machine and rider is taken by that particular stud.

Having tried so many different substitutes for pneumatic tyres on pedal bicycles in the past, we were somewhat sceptical with regard to this stud tyre when we saw it, but a short trial convinced us that it was quite comfortable. On a fairly good road and at moderate speeds we could not detect any very great difference between it and a hard pumped pneumatic tyre, the only exception being when a pothole or rough surface was struck the jerk was slightly more noticeable and in a way sharper than with a pneumatic tyre.

Of course, the great claims on behalf of the Cairns tyre are freedom from tyre troubles in the form of punctures or bursts. A badly cut or worn stud can also be replaced with facility.



Occasional Comments.

By Ixion.

Touring Weights.

A number of talkers and writers, from whom I cannot except myself, have got entrapped into a habit of referring to 3½ h.p. tourist machines as "one hundred and fifty pounders," with the accompanying implication that the average high-powered twin scales about 170 lbs. all on. As a matter of fact, these weights are sadly below the mark. Scales were not employed at the T.T. Race this year, and for the actual weights of modern speed machines, stripped for racing, we must wait until some hill-climb officials publish official statistics. But I have just received the actual weights of a set of touring machines, *complete with a full kit of clothing and spares for a reliability trial*, and they should be sufficient to quash the notion that a roadster 3½ h.p. machine with normal equipment scales no more than 150 lbs. Here they are:

(*a*) 3½ h.p., single geared, free engine, 229 lbs.
(*b*) Two 3½ h.p. machines of another make, with free engine and variable pulley, 212 lbs. and 226 lbs. respectively.
(*c*) Three twin-cylinder lightweights with two-speed gears, 155, 158, and 163 lbs. respectively.
(*d*) A high-powered twin-cylinder machine with side-car, 367 lbs.
(*e*) Three variably-geared machines of different makes, all of 3½ h.p., 226, 228, and 252 lbs. respectively.
(*f*) Two single-geared 3½ h.p. machines of less well-known makes, 201 and 248 lbs.

We must evidently realise that lightweights weigh more than their list claims when in full touring kit, and that a standard roadster ready for touring scales much nearer 2 cwt. than 150 lbs.

A New Hill.

I have been studying our report of the Scottish Trials ascent of Glencroe in conjunction with a contour book, and it has impressed me with the need of some reform in the hill tests embodied in the A.C.U. Six Days' Trial. I pay little attention to the failure of the Scottish trial riders on many other hills. On such ascents as Cockbridge or Amulree, corner work is an important factor, and a skilled rider on a good machine may fail utterly because he lacks the experience or the nerve to take a hairpin bend at a fast speed. But the Pass of Glencroe, terminating in a wicked bend at the very summit, is an excellent test.

The climb is six miles in length, there are no awkward bends below the summit, and there is no really stiff gradient, a short patch of 1 in 9 being the maximum, which occurs on a perfectly straight stretch about half a mile from the top. Here is a hill which we should expect any tourist to climb, with the proviso that he might fail at the stiff corner which concludes the climb. But as a matter of fact only three riders in a presumably expert entry made clean ascents.

The two-speeders are as helpless as the single-geared machines. The *length* of the ascent, the prolonged distance to be covered on a generous throttle opening, proves too much for the majority of the aspirants, and stops one or two machines which, in the hands of practised exponents, have never before failed on a straight ascent with no trick corner work in it. The moral is obvious. Each A.C.U. trial ought to include a hill test of this kind.

Such hills are not easily unearthed in Great Britain, but a Northern rider has kindly provided me with a description of a climb which appears highly suitable. It appears in the Northern volume of the Contour Book, route No. 42, comprising the ascent of Killhope on the Durham to Alston road. The total climb includes nearly twenty miles of tolerably easy collar work, terminating in a really formidable pitch up to the summit of Killhope. This is an intrinsically fair climb, devoid of freak corners up a single-figure gradient, and this hill, or a similar ascent, ought to be included in the Six Days' Trial of 1911.

A considerable market for motor bicycles lies among the well-to-do artisans of the Northern Counties, and we hope that next year the A.C.U. will give the North of England its turn in their route, and select several of its famous climbs as testing grounds. The Alston side of Killhope would also provide a fine test of climbing abilities, and this particular route deserves to be taken in both directions.

Gold medal winners in the Bradford M.C.C. London and Back Twenty-four Hours' Run.

Left to right:
Felix Scriven (3½ Rex). Charles Sydney (3½ P. and M.) N. Longfield (3½ Triumph). S. Todd (3½ Quadrant).

The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and should be accompanied by the writer's full name and address.

Riding Round Corners.

[4831.]—I see that the method of taking corners in the T.T. has caused a good deal of comment, so perhaps my way may be of interest to some of your readers. I found that on a push-cycle the best way to take a corner fast was to stand on the left pedal and hook my right knee over the top bar, and then swing round, keeping the bicycle nearly vertical. When I came to try this on a Motosacoche I found it worked admirably. This is for taking corners left-handed.

Wishing your excellent paper every success,

FREDK. H. PEPPE.

A Successful Tricar Conversion.

[4832.]—With reference to letter 4818, I should be obliged if your correspondent "CP 125" would inform me how he was able to decrease the weight of his tricar by over 100 lbs., as the alterations which he has carried out appear to me to increase rather than reduce the weight, as he has added a differential and a two-seated body with wind screen, while the weight of framework removed cannot surely be more than 30 lbs. As I possess a tricar of a similar type I should be pleased to receive any particulars.

J. L. BAIRD.

Spring Fork Patents.

[4833.]—I am glad to see that you still advocate further improvements in springing motor cycles, but I notice that the most prominent feature in this direction is never mentioned. I refer to the type of spring fork that is driving all others off the market, such as the Druid, Matchless, Brown, Kerry Abingdon, etc. No one appears to be able to claim to be the original inventor of this type of spring fork. It may be interesting to some if I point out that the first illustration of a spring fork on these lines appeared in *The Motor Cycle*, June 27th, 1904.

I claim to be the original inventor of the principle to which this type of spring fork owes its success. I patented it in 1901. The patent lapsed, but it is my intention to revive it again, and I think anyone who feels inclined to doubt my claims to be the original inventor will have some difficulty in finding any spring fork embodying the principle I mention, previous to 1901.

WM. GODDEN.

A District to be Avoided.

[4834.]—Will you kindly insert the following letter warning motorists in general to avoid the Lindsey division of Lincolnshire, more particularly Skegness and Spilsby?

The undersigned defended summonses at Skegness on June 14th for an alleged offence of driving to the public danger on May 17th with motor cycles and sidecars.

Despite the fact that in our opinion we proved the police evidence to be unreliable, we were fined £2 and 8s. costs each. The Chairman of the bench stated during the proceedings that one mile an hour might be dangerous. Further, that motorists had the last right—and that only because of Act of Parliament—of anyone to be on the roads.

Under such circumstances we think you will agree that no motorist has the remotest chance of receiving justice at the hands of these two benches, and we strongly advise them all to leave this district severely alone until such time as the constitution of the benches is changed.

It is further interesting to state that the Chairman at the end of the proceedings remarked that the penalty was not to be considered as a punishment, but as a warning. This we heartily endorse, as the whole affair certainly is a warning to avoid the district.

FRANK H. THOMPSON.
J. NORMAN LONGFIELD.

Wear of Rubber and Canvas Belts.

[4835.]—Having read the correspondence *re* wear of rubber belts, I think the two following cases may be of interest to your readers. I myself am using at present a 1in. Continental (not grooved), which has up to date run just over 5,000 miles, and still looks perfectly good. The machine is a 7 h.p. two-speed V.S. A friend of mine has a similar belt in use, which has run 4,280 miles, partly on a 5 h.p. two-speed Vindec and partly on a 7 h.p. V.S. These distances are not guesswork, but have been carefully recorded in each case.

V. F. M. OLIVER.

The Glasgow Clarion Sports.

[4836.]—In reply to Mr. James S. Grant's letter in your issue of Jnne 16th, may I, as one of the judges, state that Grant was reported for riding wide at the bends; his protest was not accepted becanse he had finished first in the heat, and heat winners only qualified for the final. Baxter protested against Grant, whose wide riding was palpable to everyone who followed the race, and Baxter's protest was held to be fully justified. There was no reason for Grant's astonishment on taking his place in the final, as his disqualification was posted on the board.

HENRY S. BILBE.

Belt Fastener Screws.

[4837.] — I was pleased to read the letter signed "D 3985" and J. B. Dall in your issnes of 26th ult. and 2nd inst. with reference to the above. Abont six months ago I wrote to the makers of a well-known belt fastener, and asked them why they could not make the screws with square heads. They replied saying that owing to the low charge made for their fasteners they could not see their way clear to adopt my suggestion, as screws made with square heads would cost more.

Now, how many users would object to paying a few pence more for a satisfactory article? It is not a matter of shillings but pence—threepence the most. It would save time and temper, especially in the winter, when the threads are rusted in, and also save one from getting a cut in the top of the thumb from the screwdriver slipping, as I have experienced more than once when shortening belts by the roadside. Wishing your excellent paper every success.

HENRY BUCKELL.

Road Dangers.

[4838.]—The letter of "J.M.E." in the issue of June 16th has caused considerable comment amongst local motorists who constantly traverse the Douglas Moor, N.B.

"J.M.E." warns motor cyclists from travelling over this stretch. In the name of the local motorists I would like to recommend all coming North to utilise this route, as there is not a better surface in all the road from Glasgow to Carlisle. He talks about the road being sprinkled here and there with sharp stones like a razor. I defy anyone to find a single stone anything like the sharpness of the back of a knife in any patch, and, what is more, the road-menders on this moor road always leave a track on the right or left clear for cyclists, as all are cyclists themselves, and I have never yet heard of a cyclist having a puncture on this road since I started cycling or motor cycling. "J.M.E." must have started with a tyre that should never have been on. If he had made diligent enquiries in Glasgow for a cover 24 × 2½ he could have had as fine a collection to choose from as there is to be had in any big city in Britain.

RED INDIAN.

By Cable.

Copy of Code Telegram

FROM

Christchurch, New Zealand.

DATED JUNE 21st.. 1910.

Code Word.	*Translation.*
THUDEZEPKU	Remarkable Victories
MADNAXORYP	Invincible TRIUMPH
PUCPAGOCYS	Motor Cycles
KYHWUFEJED	Hill Climb
ZUCFESIX	Win Six
JUYYXSOCYG	FIRST PRIZES

This is a repetition of the splendid performance of the

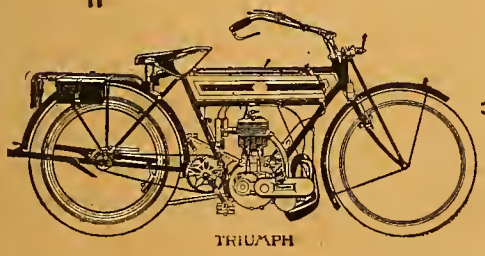
Trusty TRIUMPH

In the same competitions during 1909, and shows the marvellous consistency of this world-famous Motor Cycle.

Catalogue with Booklet of practical riding hints post free.

TRIUMPH CYCLE Co., Ltd., COVENTRY.

London: 4/5, Holborn Viaduct, E.C. Leeds: 4, King Edward Street. Glasgow: 101, Mitchell Street, Manchester: 160, Deansgate. Dublin: (wholesale only), 62, William Street.



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"ALWAYS GRIP."

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KEMPSHALL GOLD MEDAL TYRES

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SIX DAYS' SCOTTISH TRIALS

GOLD MEDAL,
SILVER MEDAL,
2 BRONZE MEDALS,

the highest awards, thus again proving their extraordinary durability and speed.

"NEVER SLIP."

Insist upon having them fitted to your machine.

The only tyres which have gained the R.A.C. Certificate for Non-skidding.

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LONDON, W.C.

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Telegrams: "Studless, London."

Birmingham: Reginald G. Priest, 71, Lionel St. Paris: 46, Rue St. Charles. Antwerp: 61, Rue Haringrode.
Agents for the United States: Cryder & Co., 583, Park Avenue, New York.

Write for full particulars post free on request.

C.D.C.

An Experience with a Tyre-filling Compound.

[4839.]—Early in May this year I was troubled with a porous inner tube on my front wheel tyre which defied all efforts to locate the defective spot. Before starting upon the London-Edinburgh run I decided to replace it on the first provocation with a new butted inner tube, which I carried for the purpose during the aforesaid run.

This tube needed to be pumped up once or twice each day, it being quite old, and had nine patches, but all of which seemed to be sound, and yet I would find the tyre flat each morning.

It seemed a shame to scrap this tube with the price of rubber on the ascendency, and in looking through your columns for a remedy I came across the advertisement of Firmax. On May 23rd I filled the front inner tube and pumped up to 60 lbs. per square inch, and since then I have not been troubled, although the tyre has been through wet and mud as well as perfect weather for 1,029 miles.

Since the first of this month the rear tyre has been 887 miles (including a business trip to London), and although I pulled out a ⅜in. nail while in London, and a hobnail while in Birmingham, this latter causing the air to hiss out quite fiercely, but after turning the wheel round and tapping a bit, I pumped up, and rode to Manchester, and only pumped it up once a little harder as a precaution during the trip, and it still holds up hard.

I may add that I have absolutely no interest in this material other than a satisfied user, and I hope that the competitors in the A.C.U. End-to-end Trials will record their experiences with this or other most welcome tyre fillers. H. W. TURNER.

A Pressure-fed Four-cylinder F.N.

[4840.]—Thinking it may interest some of your readers, I send you a photograph of my four-cylinder F.N. motor bicycle.

As you will see, the saddle is at its lowest possible point, only just clearing the rear wheel. This is attained by placing the petrol tank under the engine, pressure being obtained by a small air pump driven from the half-time shaft. By this pressure feed I find I can get more power up hill, the supply being constant. The small pressure pump (the piston being only ⅜in. diam.) is just above the footboard in base of engine.

J. WILSON.

The Future of the T.T. Race.

[4841.]—The fact seems to be generally recognised that the limit of speed in the Tourist Trophy Race has now been reached, and that any further rules must tend to decrease the average pace. It has been suggested that this should be done by reducing the size of the engines. I think that the majority of motor cyclists will agree with me when I say that this would be a great pity. The original object of the race was to perfect the design of the touring motor bicycle. If the only machines allowed to compete are ultra-efficient midgets, which in touring condition would not give more than about 3 h.p. (much too low for the average tourist), the whole aim of the race is entirely lost sight of. Would it not be far more rational to keep the same capacity of engine, and to insist that every machine entered must be a genuine touring machine, and not a Brooklands racer fitted with a silencer and a pair of flimsy mudguards for the occasion? It was bad enough to have all our hill-climbs won by trade riders on special machines, but when the same state of things applies to the only road race that ever takes place in the British Isles, it is surely time that something was done.

I would suggest that the same plan should be adopted as was suggested with regard to the hill-climbs years ago, namely, that each firm should send word to the officials as to the number of machines they wished to enter, and that the officials should send two committeemen to the factory to choose out this number of bicycles from stock, and carefully seal them, so that they should not be tampered with until they were safely in the Isle of Man. Every private owner would, of course, have to have his machine examined carefully to see that it was genuinely standard. I do not think the trade would raise any great objections to this plan, as it would obviously be a far better advertisement for the winning machines than is the case at present, when special engines, special frames, special saddles, and special silencers are the vogue, and when pulleys, magneto brackets, belt rims, and frames are drilled to the very limit of safety, and in some cases beyond it.

If we have separate races for singles and twins next year, I suppose the size of the twin engines will be increased so as to include the standard 5 and 6 h.p. machines.

E. K. WYATT.

Motor Cycle Insurance.

[4842.]—Referring to letter "L.D. 1889" in regard to motor cycle insurance, I should like to put your correspondent right in regard to the facts. As regards the people responsible for the prospectuses, I think I may claim to know something about motor cycles, being on A.C.U. committees and a founder of the Essex Motor Club. For years I have been fighting the case of the motor cyclist for reasonable rates for insurance, and have succeeded in arranging vastly different terms from those in practice three years ago.

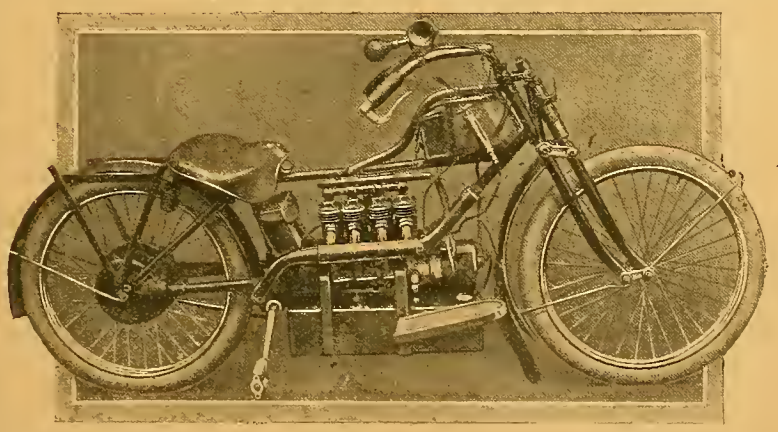
Taking your correspondent's figures, 50 per cent. is not charged on the whole of the risk for converting to a three-wheeler, the increase does not apply either to burglary or to fire, but 20 per cent. only is added on third party risk rates; the former rates are according to value of combined vehicle.

Taking personal accidents, the rate to cover £250 at death with other benefits is not £1 10s. per annum but 15s. I should like to know the company the correspondent is insured with for any accidents for 18s. 9d. per annum.

ERNEST J. BASS.

Increase of Speed on Partially Raising Exhaust Valve.

[4843.]—We have read the articles which have appeared from time to time in your columns relative to the above, and with your permission would like to give our opinion regarding same, which we think is about the only solution of the "phenomenon," as some of your readers call it.



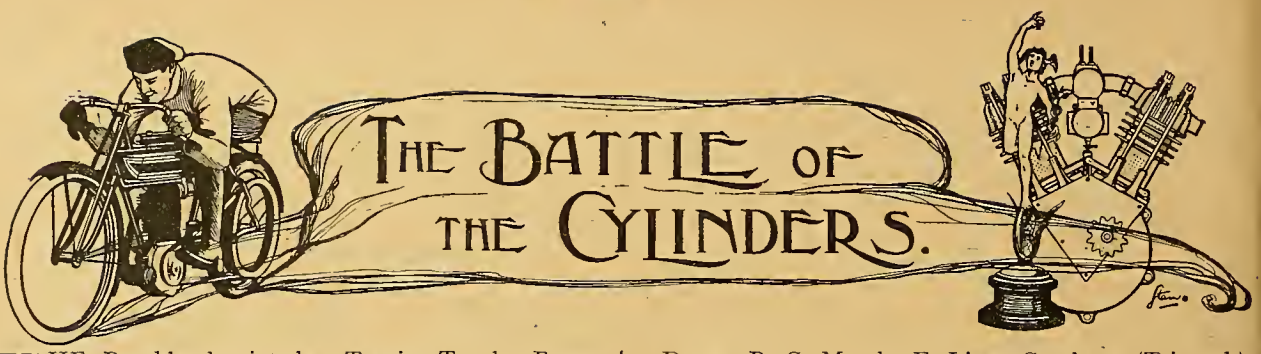
A four-cylinder F.N. altered to give a very low riding position. The petrol tank, it will be observed, is underneath the engine. (See letter No. 4840.)

We would first of all point out that the exhaust valve has to open against a pressure varying from 60 to 120 lbs., according to the size of the valve, and it certainly must be an advantage if the valve can be opened against a less pressure. It therefore must be due to the lead that is given to the exhaust by lifting it that causes the increase of power. It was the outcome of experiments which were carried out by the patentee of our Concentric Pilot valve some fourteen months ago that gave him the idea of lifting a smaller or pilot valve first and then the main valve, and it is upon this basis that our patent rests.

We have proved conclusively that this increase of power or speed on partial lifting of the exhaust valve is due to the surge of exhaust gases against the head of the valve being partially relieved, thereby giving a freer path for the exhaust gases to escape. J. C. LYELL AND CO., LTD.

EXPERIENCES WANTED.

"A 5036" would be glad of private owners' experiences of the F.N. 2¼ h.p. shaft-driven lightweight, particularly with regard to hill-climbing, comfort, and reliability.



The Battle of the Cylinders.

THE Brooklands sixty-lap Tourist Trophy Race held on Wednesday last week proved, thanks to the track's usual slice of luck in the matter of weather a great success and a most interesting event. The morning was spoilt by a heavy thunderstorm, but afterwards the weather improved considerably, so that at 4 p.m., the time the race was booked to start, there was one of the biggest attendances of spectators the B.M.C.R.C. has yet had.

The conditions of the race were similar to those governing the road event in the Isle of Man, except singles and twins were not competing for the same prizes; in fact, it might be said that there were two entirely separate and distinct races run off concurrently. It was notwithstanding a battle of the cylinders, as at one time it looked as though the honour of making fastest time might have belonged to a rider of a single-cylinder machine.

The List of Entrants.

SINGLE CYLINDERS.—W. E. Cook, N. E. Parker (N.L.G.); S. Wright, B. Yates (Humber); Lieut. Spencer Grey, R.N., A. R. Abbott (Rex); H. Lister Cooper, J. H. Watson, E. D. Colrick-Herne, J. Marshall, W. F. Newsome, W. Creyton, E. Gwynne, W. Dewar, R. G. Mundy, F. Lister Goodacre (Triumph); F. McNab, J. Gibson, A. C. Maitland (Trump-J,A.P.); G. E. Stanley (Premier); and J. H. Slaughter (Ariel).

MULTI-CYLINDERS.—G. Lee-Evans, D. R. Clarke, A. Moorhouse, C. B. Franklin, A. G. Fenn (Indian); W. H. and J. T. Bashall, S. A. M. Witham, H. H. Bowen (Bat); M. Geiger, F. H. Arnott (V.S.); B. V. Jones, F. Savory (Premier); E. C. Fitzherbert, R. O. Clark (F.N., four-cylinder); N. E. Drury (Chater-Lea-J.A.P.); Deacock (Wanderer); and H. Reed (Dot).

All the above faced the starter with the exception of the two V.S. riders and Colrick-Herne. The latter had had a nasty spill in practice owing to his front wheel having buckled when riding at full speed, with the result that his hands and arms had suffered.

The riders were started from the fork shortly after 4 o'clock by Mr. Ebblewhite, and within a quarter of a mile the "tailing-out" process had begun. Witham immediately took the lead in dashing style, but did not get much in front of Bowen, the order for the first lap being as follows: Witham, Bowen, J. T. Bashall, Read, Abbott, Marshall, and Moorhouse. In the next lap W. H. Bashall got well up in front, and for a lap

A Tourist Trophy Reunion. Crowded scene at the fork before the start of the Sixty Lap T.T. race.

INDIANS IN COMPETITION. 1910.

Jan. 29th.—FIRST 1910 A.C.U. QUARTERLY TRIALS. 3 INDIANS make non-stop runs.

March 5th.—CAMBRIDGE UNIVERSITY M.C.C. PETROL CONSUMPTION TRIAL. Standard 5 h.p. INDIAN, 115·2 miles per gallon.

March 12.—GLASGOW UNIVERSITY M.C. HILL CLIMB. Class 2, Multi-cylinders (unlimited), 5 h.p. INDIAN, First. Class 3, Scratch race up to 750 c.c. 638 c.c. INDIAN fastest time.

March 16th.—B.M.C.R.C. RACE MEET AT BROOKLANDS. The All Comers' Handicap, 8½ miles. 5 h.p. INDIAN Second. The One Hour Tourists' Trophy Race. INDIANS secure First, Second, and Third; also Class D record for 1 hour and 50 miles.

March 28th.—BROOKLANDS AUTOMOBILE RACING CLUB EASTER MEET. 8½ miles Handicap. INDIANS, Second, Third, Fourth, and Fifth.

March 26-28.—INTER-TEAM RELIABILITY TRIAL. London to Harrogate and back. 5 h.p. INDIAN secures Silver Cup and First Prize in twin-cylinder class Sutton Bank Hill Climb.

April 2nd.—WESTERN DISTRICT M.C. HILL-CLIMB. 5 h.p. INDIAN makes fastest time of the day.

April 2nd.—ESSEX MOTOR CLUB PAPER CHASE. 5 h.p. INDIAN winner.

April 13th.—B.M.C.R.C. MEET at BROOKLANDS. One Mile Time Trials. 7 h.p. INDIAN fastest time, i.e., 71·1 m.p.h.

April 27th.—BROOKLANDS AUTOMOBILE CLUB'S APRIL MEETING. April Motor Cycle Handicap. 5 h.p. INDIA Second. Weybridge Motor Cycle Handicap. 5 h.p. INDIANS First and Second.

April 30th.—M.C.C. HILL CLIMB. Class 3 for Multi-cylinders. 5 h.p. INDIANS, First, Second, Third, and Fifth.

May 7th. EDINBURGH WAVERLEY CLUB SPEED TRIALS. 5 h.p. INDIAN fastest time of the day.

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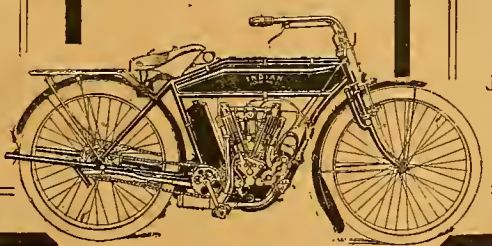

May 7th.—GLASGOW M. C. C. HILL CLIMB. Multi-cylinder Class. 5 h.p. INDIAN, 1st—all other multi-cylinder machines entered failed to climb the hill.

May 7th.—OXFORD M. C. C. HILL CLIMB. Multi-cylinder Class. 5 h.p. INDIAN, First, winning two awards.

May 13/16th.—M.O.C. LONDON to EDINBURGH RUN. INDIANS secure Two Gold Medals and Special Gold Medal for return journey.

May 27th.—OPEN A.C.U. HILL CLIMB up SNAEFELL MOUNT. Class 2b for Private Owners. 5 h.p. INDIANS, First and Third. Class 4a for T. T. Multi-cylinder machines. 5 h.p. INDIANS, First and Second. Class 4b for T. T. machines, Private Owners, 5 h.p. INDIANS, First and Second. Class 5 for any type of machine not exceeding 1,000 c.c. 7 h.p. INDIAN, First.

June 4th.—M.C.C. RACE MEET at BROOKLANDS. INDIANS secure, Two Firsts, One Second, and Two Thirds.

June 4th.—BRADFORD M.C.C. HILL CLIMB at TONG. 7 h.p. INDAN climbed the hill at a speed of 60 miles per hour.

June 4th.—OXFORD M. C. C. HILL CLIMB on IRONDOWN HILL. 5 h.p. INDIAN, First.

June 4th.—DUBLIN and DISTRICT M.C.C. HILL CLIMB. 5 h.p. INDIAN creates new record for the hill.

June 4th.—CLARION C.C. SPORTS, CELTIC PARK, GLASGOW. 3 Mile Motor Cycle Handicap. 5 h.p. INDIAN 1st in heat and 1st in final heat.

June 4th.—CARDIFF M.C. HILL CLIMB. 5 h.p. INDIAN first in Twin Cylinder Class.

June 11th.—MANCHESTER MOTOR CLUB'S HILL CLIMB. 5 h.p. INDIAN First on formula and fastest time of the day.

June 11th.—MIDDLESEX AUTOMOBILE CLUB'S HILL CLIMB. Motor Cycle Class. 5 h.p. INDIAN fastest time, and winner of the Earl of Ronaldshay's Cup and Gold Medal.

June 11th.—HERTS COUNTY A.C. OPEN HILL CLIMB. Class D. Multi-cylinders—cylinder capacity not to exceed 670 c.c. 5 h.p. INDIANS, First and Second. Class E. Multi-cylinders—cylinder capacity not to exceed 670 c.c. 5 h.p. INDIAN, Second.

June 22nd.—B. M. C. R. C. 163 MILES RACE FOR TOURING MOTOCYCLES. 5 h.p. INDIAN, ridden by private owner, WON by 10 minutes.

S & H.

The Time for the Tour

is now—and that Time, and especially that devoted to your preparation, reveals many needs- needs that the Tour will emphasise as no other experience can.

Now on such occasion the Spare Belt and Tube are absolute essentials, and equally essential for their conveyance is the

BROOKS Spare Belt and Tube Case.

This is made either in best quality leather or the finest stout waterproof canvas on special fibre board. Belts are carried in the outer compartment, the central division being designed for the reception of spare tubes, and both belts and tubes are held in position by a stout strap, as illustrated. The lid is closed with strap and buckle and the case can either be carried on the top of the Carrier or attached to the side of same and the downstays of the machine by means of detachable and adjustable Clips.

Its size is 9½in. diameter by 3½in. deep, and its price in canvas 9/- and in leather 10/6.

This fills one need, but you have many others in the matter of luggage-carrying equipment, all of which are provided for in the range of Touring and Tool Bags illustrated and described in the BROOKS BOOK.

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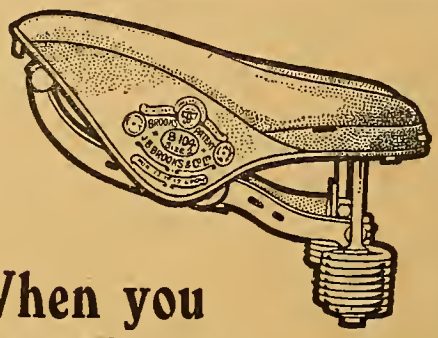

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say BROOKS and, by so doing, vanquish that vibration which *at least* will bring discomfort and fatigue and *may* have still more serious consequences.

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Remember, these *are* an exclusive feature, and the advantages accruing from their unique construction are only obtainable in the various models of the

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Of these we illustrate B104 P, which is specially constructed to give a low-riding position—perfectly shaped—and made of the finest quality superfine leather with padded top.

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J. B. BROOKS & Co., Ltd.,
49, Criterion Works, Birmingham.

In answering this advertisement it is desirable to mention "The Motor Cycle."

The Battle of the Cylinders.—

or two the field was led by the four Bat riders, all travelling at a tremendous speed and hard on each other's heels. Reed and Jones were also travelling very fast, and amongst the singles Parker looked to be as speedy as any; the F.N.'s had not got thoroughly into their stride, whilst Lee-Evans was travelling by no means up to his usual pace.

Moorhouse and Marshall having once got together seemed loth to part company, and lap after lap were reeled off within a few feet of one another. One round Marshall would be, apparently, jamming his front wheel into Moorhouse; the next the positions would be reversed, and then for a circuit or two they would whizz along side by side.

of his belt, which was slipping badly, whilst Dewar found the belt he had started with unsatisfactory, and changed it for a new one.

Following the example of Marshall and Moorhouse, the two four-cylinder F.N.'s, which went round with a very pleasing hum, and the brothers Bashall kept close together, but there was in other cases a good deal of rather reckless riding. Some of the competitors seemed to strain every nerve to get behind someone and use him as a wind shield for a few moments, with the result that there was a lot of dangerous dodging.

Four or five laps of the pace that the Bats were setting very soon weeded out the field, and a good many riders disappeared into the oblivion of the far side of the track. One of the first to retire was

Lined up for the start. There were 21 single-cylinder machines and 17 multi-cylinders in the race.

Owing to the large number of riders and the considerable divergence of the speed of the twins and singles, it was impossible to count the laps of the various machines. The following account consists of notes taken on the spot and in their chronological sequence as far as possible.

Bowen's Stop to Change a Plug.

A replenishment and repair depot, where each rider might avail himself of the services of one helper, had been established at the fork, and Bowen was the first to patronise it to change a plug which had blown itself completely out of commission. The sparking point end of the internal rod dropped into the cylinder and remained there until the end of the race, when Bowen exhibited a small piece of metal about the size of a pea, which he had just extracted from his engine.

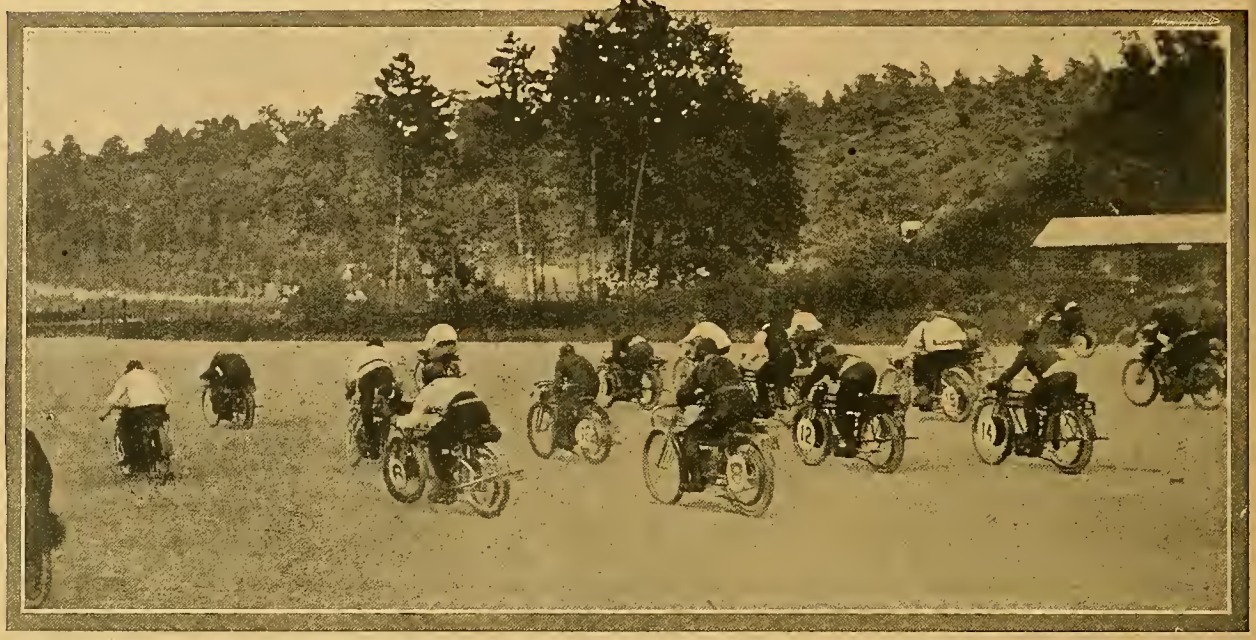
Shortly after Deacock stopped to take a piece out

Stanley. The tank on his machine was fitted with a very large and heavy filling cap, which came loose owing to vibration and was lost on the track. Stanley came in soaked with petrol and gave up, as at the rate the petrol was splashing out, his tank—at any speed—would barely have lasted him a couple of laps, and there was, of course, considerable risk of fire.

That Witham was setting a somewhat hot pace may be appreciated when it is said that he knocked almost three minutes off the existing fifty miles record, made by Colver in October of last year, Witham's time for the distance being 45m. 45⅘s. against Colver's 48m. 25s.

Scarcely had this dashing rider set up this new record when he met with an accident which put him completely out of the race. Whilst on the Byfleet banking, and going "all out," his front mudguard

The Battle of the Cylinders.—



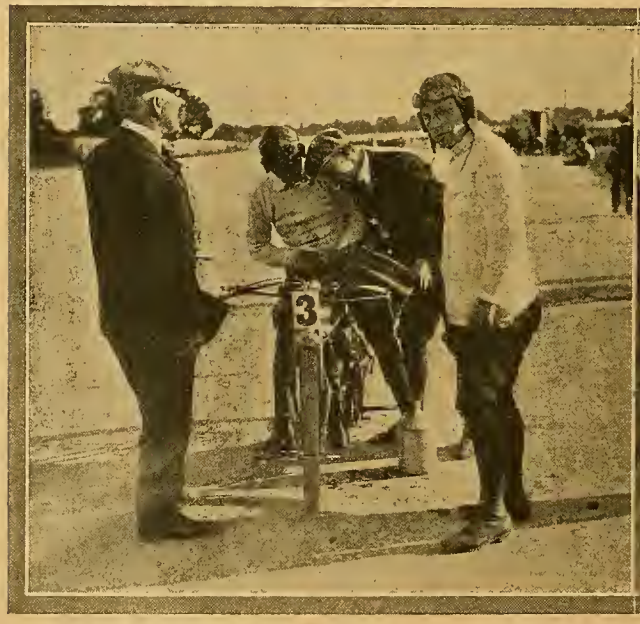
Off! A splendid photograph of the start showing that every competitor got away well.

came adrift, locked the wheel suddenly, and brought him off. Witham estimated the number of somersaults he had done as twelve, but, whether or no, he had a marvellous escape, for he escaped without a single scratch—and this after coming off at nearly seventy miles an hour!

This unfortunate mishap did not change the "make" of the leading machine, as J. T. Bashall now dropped into first place, with his brother and Bowen close behind him.

Lee Evans was early in trouble; his engine was not running at its best, and he was lubricating it so generously that a stop for replenishment after eight or nine laps became necessary. After completing another lap he tried the effect of a change of plugs, but it was clear by the behaviour of the engine that several causes were contributing to its troublesomeness. The other Indians were, however, going well, especially Franklin and Fenn, the latter riding with his right leg resting on the back step.

Sam Wright, who was anticipating some valve trouble, was going extremely steadily and well,



S. Wright (chain-driven Humber) stops for petrol. The special overhead valve engine used on this machine was described in *The Motor Cycle*, June 9th.

The single-cylinder class winner, F. A. McNab (3½ h.p. Trump-J.A.P.), finds time to drink a cup of tea.

The Battle of the Cylinders.—

although he was obviously keeping a good deal in hand. The other "aeroplane" Humber rider did not appear after the first lap or two, but the precise trouble which had put him out of the race was not known.

Amongst the Trump-J.A.P.'s, Maitland's machine was very noticeable. Geared 4 to 1, it was amongst the fastest of the singles, from which it is evident that the engine must have been doing something pretty high in r.p.m. As a result, his valves began to give

A competitor stops for replenishments.

trouble through lengthening. A few minutes in the depot with a file, however, effected a quick repair, and he was soon off again.

Although the programme stated as clearly as English could that only *one* helper would be allowed for each machine, most of those who came in for some cause or other were soon surrounded by a crowd of willing assistants, but thanks to the efforts of one or two of the marshals this state of affairs was quickly ameliorated.

Harrison Watson, who rode very pluckily indeed, early had a taste of the trouble which continually kept him busy at the repair depot. Do what he could his valves would lengthen, in spite of the fact that they were of a special design expressly made by the Triumph Co. for racing purposes. Watson's spring fork appeared to be much too flexible for the speed and the roughness of the track, with the result that at times he was obliged to drop down into a lower speed for safety's sake.

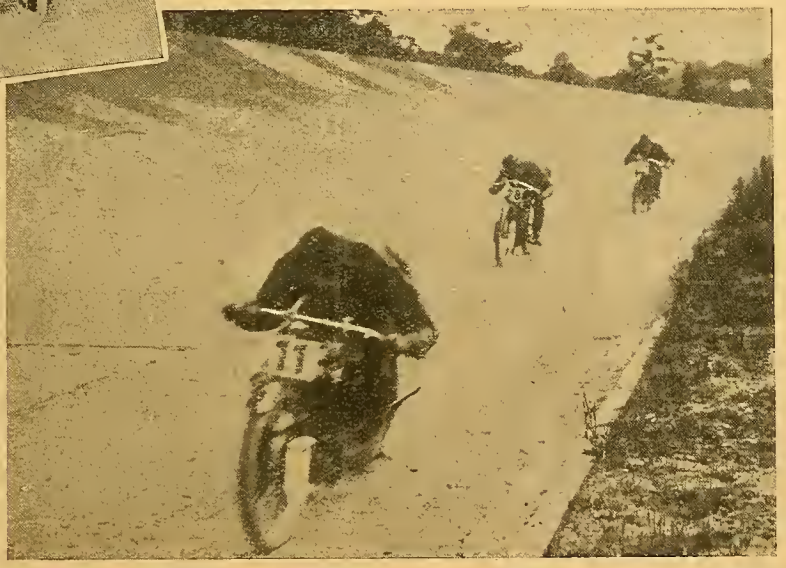
The Triumphs, as a team, had been going very fast and consistently, but unfortunately two of their best riders were thrown out of the race quite early. Creyton, who had been making a very hot pace, came badly to grief just beyond the members' bridge, owing to his front wheel failing in much the same way as Colrick-Herne's. A few laps later Newsome had the misfortune to run over the filler which Stanley's Premier had lost, and so badly was his back wheel buckled in consequence that he was obliged to retire.

A Rapid Replacement. A Dissolved Partnership.

Fenn executed a remarkably quick repair to his Indian, as he changed the chain wheel on the engine-shaft for a new one in a mere matter of seconds. After going along together for fifteen laps or so, Marshall and Moorhouse both stopped for tank replenishment, and after this point the partnership seemed to be for some reason dissolved, as Moorhouse rapidly got going much faster than he had been hitherto.

The "bookies" had made Bowen favourite at the start, but it looked as though they would have been wiser to "bar" all the Bat riders. Witham still maintained the position he assumed during the first lap, and the only machines that seemed capable of keeping in touch with him were his own stable companions.

Harry Reed, whose Dot had been going extremely



J. Marshall (3½ h.p. Triumph), A. J. Moorhouse (5 h.p. Indian), and B. V. Jones (5 h.p. Premier) at speed. This trio kept together for several laps.

well, and whose lap times were amongst the best recorded, had the misfortune to lose the pin out of his tappet rocker, and he therefore gave up. Half an hour or more after this, however, Charlie Collier fixed him up with a new pin, and he started off again, but with the loss of so much time as to ruin his chance.

Amongst the Indians, Moorhouse now seemed to be easily the fastest, but his sporting match with Marshall had evidently done no good to his eyes, which troubled him considerably. Moorhouse adopts a peculiar attitude on his machine, which is quite individual and makes him easily distinguishable at a distance. It was a pity that more of the riders did not do the same. The machines carried metal number discs on which were posted paper numbers. Wind, oil, and a hot sun,

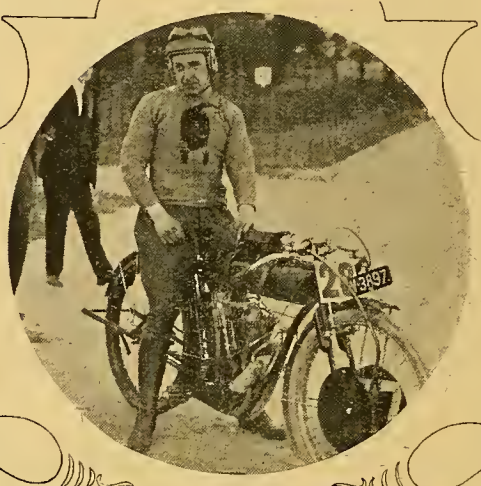
The Battle of the Cylinders.—

however, soon peeled them off, and for the greater part of the race most of the machines could only be identified by the small card number plate.

Opposite the fork an arrangement for lap scoring had been erected, but, unfortunately, there were not enough numbers available.

Vickers Jones's Premier was not only speedy, but extremely consistent, and for lap after lap he did wonderfully good times. His silencer, however, caused him some little delay. Meanwhile McNab was going in quite his best style, and appeared to be the fastest single left in the race. His machine was a brand new one. Parker's N.L.G., which had started off so well, had plug trouble, and this was followed by some internal derangement of a more serious kind, and he was therefore forced to retire after twenty-two laps.

At 6.10 the following riders were left on the track, all the others having retired. Many of the latter were on the further portion of the track, and it was therefore impossible to ascertain what trouble it was that had proved too much for them: Moorhouse, Drury, Grey, Jones, Wright, NcNab, Goodacre, Marshall, Gwynne, J. T. Bashall, Fitzherbert, Franklin, Bowen, Bashall, Watson, Reed, Abbott, and Clarke. Of these, J. T. Bashall had done forty laps and was lying first to Moorhouse's second place with thirty-seven laps, whilst Marshall was leader of the singles.



The winner, A. J. Moorhouse (5 h.p. Indian), the popular hon. sec. of the Manchester Motor Club.

F. A. McNab (3½ h.p. Trump-J.A.P.), first of the single-cylinders. A remarkable performance considering his bulk.

Retirement of the Leaders.

Casualties now seemed to increase in number, valve troubles being the principal cause of the riders seeking the repair depot. Watson seemed especially unhappy in this respect, and Marshall also had trouble with his valves lengthening. W. H. Bashall, who was well up amongst the leaders, had to stop to clean his belt, as the oil with which it was smothered caused it to slip badly. Jones and Drury also had belt troubles, the latter's pulling clean in two.

The F.N. ridden by Clarke now stopped owing to lubrication difficulties, but Fitzherbert on the other four-cylinder continued to ride in great style, although he found it necessary to keep his thumb permanently on the float needle.

At 6.40 J. T. Bashall was leading with fifty-two laps to his credit, whilst Moorhouse was second with forty-eight. The former with only eight laps to go looked an easy winner, but in spite of his great pace misfortune caught him up. On the Byfleet banking a valve broke and dropped into the cylinder, the head of which was blown off, and Bashall was therefore put completely out of the race. This mishap put the Indians into first and second places, Moorhouse being first with forty-nine laps and Franklin second with forty-six. At this point Gwynne's front tyre burst and almost caused a catastrophe, but the rider with great cleverness and pluck managed to save himself amid the cheers of the spectators. Just previous to this he had had an upset and lost a good deal of skin off his face.

Jones, who had put up a capital fight, was now put out of the running by a broken valve. In trying to get it out he broke the valve cap. Marshall and McNab continued to travel exceedingly well, as also did W. H. Bashall.

At 7.5 the positions were as follows: Twins, Moorhouse and Franklin. Singles, McNab leading, followed by Marshall. A few minutes later Moorhouse rode in an easy winner as well as a highly popular one.

Franklin stopped with only a couple of laps to go, owing to some misunderstanding, and in doing so lost his second place to Bowen.

The result of the race was declared as follows:

TWIN-CYLINDER MACHINES.

1.	A. J. Moorhouse (Indian)... ...	2h. 52m. 30s.
2.	H. H. Bowen (Bat-J.A.P.) ...	3h. 17m. 24s.
3.	C. B. Franklin (Indian)	3h. 19m. 36s.

The Battle of the Cylinders.—

SINGLE-CYLINDER MACHINES.

1. F. McNab (Trump-J.A.P.) ... 3h. 2m. 10⅕s.
2. J. Marshall (Triumph) ... ... 3h. 5m. 46⅗s.
3. A. R. Abbott (Rex) ... ... 54 laps
4. F. L. Goodacre (Triumph) ... 52 laps

During the progress of the race several motor cycle records were broken. A list of these is printed in the next column.

TWIN-CYLINDER MACHINES.

Classes D and E.—50 miles, S. A. M. Whitham, 45m. 45⅘s.
Classes D and E.—100 miles, J. T. Bashall, 1h. 37m. 13⅗s.
150 miles, A. J. Moorhouse, 2h. 37m. 40⅘s.
1 hour, J. T. Bashall, 62 miles 1,300 yards.
2 hours, J. T. Bashall, 123 miles, 50 yards.
3 hours, A. Moorhouse, 151 miles 1,545 yards.

SINGLE-CYLINDER MACHINES.

100 miles, J. Marshall, 1h. 50m. 22s.
150 miles, F. A. McNab, 2h. 51m. 17⅗s.
3 hours, F. A. McNab, 158 miles 548 yards.

BRADFORD-EDINBURGH AND BACK OPEN TRIAL.

An innovation in the way of competitions is to be introduced by the Bradford Motor Cycle Club in connection with its twenty-four hours run to Edinburgh and back on July 16th and 17th. The scheme was laid before the club committee on Tuesday evening by Mr. S. Johnson, an energetic official of the club, and briefly it is as follows: Mr. Johnson considers that long distance reliability trials are too monotonous and will die a natural death on account of the unfailing reliability of present day machines, instancing the fact that only eleven entries were received from a membership of 120 for the recent Bradford to London and back twenty-four hours' run. By inviting entries of teams of three riders, novices and others who do not care for solitary twenty-four hour jaunts will be encouraged to enter because a team may be formed of a party of three friends, and all will be allowed to ride together and help each other, and it is to their advantage to do so, as the team scoring the highest number of marks will win the trophy. A team at checks and the finish are timed in accordance with the last man's schedule, so that on the last man practically depends the success of his team. In addition to the trophy a gold medal will be presented to each member of the winning team (should a team and not an individual rider be successful), and clubs may nominate teams or individual teams may enter as desired, the event being open, and under A.C.U. rules. Another new departure is in connection with the passenger class. To encourage further entries, it has been decided to present gold medals to the passenger as well as the driver of successful passenger combinations, and further a change of drivers will be permitted.

ENTRANTS FOR THE A.C.U. END-TO-END TRIALS.

No.	Rider and machine.	No. of cylinders.	Bore and stroke.
1.	W. W. Douglas (2¾ Douglas) ...	2 ...	60 × 60
2.	P. Phillips (2¾ Douglas)	2 ...	60 × 60
*3.	F. Dover (3½ Triumph)	1 ...	85 × 88
*4.	J. A. Stacey (3½ Triumph)	1 ...	85 × 88
5.	E. Clark (2¾ Douglas)	2 ...	60 × 60
6.	J. Haslam (2¾ Douglas)	2 ...	60 × 60
7.	W. H. Wells (4 Indian)	1 ...	82½ × 93
8.	G. Lee Evans (4 Indian)	1 ...	82½ × 93
*9.	P. Grout (2¾ Douglas)	2 ...	60 × 60
*10.	P. Allen (2¾ Douglas)	2 ...	60 × 60
11.	W. Pratt (3½ P. and M.)	1 ...	82 × 88
12.	P. Shaw (3½ P. and M.)	1 ...	82 × 88
*13.	W. O. Bentley (Indian)	2 ...	70 × 83
*14.	E. Nelson (5 Rex)	2 ...	76 × 80
*15.	W. H. Bashall (Bat)...	1 ...	85½ × 58
*16.	J. T. Bashall (Bat)	1 ...	85½ × 58
*17.	G. H. Lake (3½ P. and M.) ...	1 ...	82 × 88
*18.	H. Mallhewman (3½ P. and M.) ...	1 ...	82 × 88
*19.	J. Gibson (8 J.A.P.)	2 ...	85 × 85
*20.	H. H. Bowen (6-7 Bat)	2 ...	76 × 85
*21.	S. A. M. Witham (5-6 J.A.P.) ...	2 ...	76 × 85
22.	G. Allen (3½ James)...	1 ...	86 × 96
23.	C. Patteson (2¾ Moto-Rêve) ...	2 ...	50 × 85
*24.	J. R. Haswell (3½ Triumph) ...	1 ...	85 × 88
*25.	J. D. A. Munro (6-7 Bat)	2 ...	76 × 85
*26.	F. G. Boddington (4 J.A.P.) ...	1 ...	85 × 85
27.	H. J. Cox (1¾ Singer Moto Velo) ...	1 ...	62 × 70
*28.	C. J. Fox (7-8 Bat)	2 ...	85 × 85
29.	Bert Yates (3½ Humber)	1 ...	83 × 90
30.	Sam Wright (3½ Humber)	1 ...	83 × 90
*31.	S. W. Carty (3½ N.S.U.)	1 ...	85 × 88
32.	G. L. Fletcher (2¾ Douglas) ...	2 ...	60 × 60
33.	F. W. Newsome (3½ Triumph) ...	1 ...	85 × 88
34.	W. Creyton (3½ Triumph) ...	1 ...	85 × 88
35.	H. Greaves (2¼ Enfield)	2 ...	52 × 70
*36.	J. Baker (3½ Triumph)	1 ...	85 × 88
*37.	C. Williams (3½ Triumph)	1 ...	85 × 88
*38.	A. Stubbs (3½ Dot)	1 ...	85 × 88
*39.	Rev. Basil Aston (3½ Triumph) ...	1 ...	85 × 88
40.	R. W. Duke (3½ Triumph-Gradua)	1 ...	84 × 86
41.	F. W. Barnes (3½ Zenith-Gradua)	1 ...	85 × 85
42.	P. Weatherill (3½ Zenith-Gradua)	1 ...	85 × 85
43.	T. H. Tessier (7-8 Bat)	2 ...	85 × 85
44.	J. Stevens (Wolf)	— ...	——
45.	A. J. Stevens (Wolf)	— ...	——
46.	F. Smith (5-6 Clyno)	2 ...	76 × 82
47.	A. J. Sproston (3½ Bradbury) ...	1 ...	87 × 87
48.	H. Williamson (5 Rex De Luxe) ...	2 ...	77½ × 80
49.	W. A. Sale (3½ T.T. Rex)	1 ...	84½ × 89
*50.	J. Smith (3½ Bradbury)	1 ...	87 × 87
*51.	S. S. Williams (3½ Triumph) ...	1 ...	84 × 86
52.	A. T. Stanton (3½ Bradbury) ...	1 ...	87 × 87
53.	J. Eastwood (3½ Bradbury) ...	1 ...	87 × 87
*54.	W. A. Jacobs (3½ Rex)	1 ...	84½ × 89
*55.	J. P. le Grand (5 Rex)	2 ...	77½ × 80
56.	J. S. Holroyd (1½ Motosacoche) ...	1 ...	62 × 75
*57.	J. Woodward (Rex)	1 ...	84½ × 89
58.	P. Platt (3½ Bradbury)	1 ...	87 × 87
*59.	W. Houghton (3½ Bradbury) ...	1 ...	87 × 87
60.	A. D. Arter (3½ James)	1 ...	86 × 96
61.	S. C. Perryman (3½ James) ...	1 ...	86 × 96
62.	H. Gibson (3½ Bradbury)	1 ...	87 × 87
*63.	G. Wray (3½ Bradbury)	1 ...	87 × 87
64.	B. Jones (5 Premier)	2 ...	71 × 84
65.	G. E. Stanley (3½ Premier) ...	1 ...	85 × 88
66.	R. Lord (3½ Excelsior)	1 ...	84½ × 89
67.	C. Wilson (3½ Excelsior)	1 ...	84½ × 89
68.	F. Savory (5 Premier)	2 ...	71 × 84
69.	Bertram Austin (3½ L.M.C.) ...	1 ...	85 × 88
*70.	F. A. Hardy (5 V.S.)	2 ...	75 × 75
71.	B. Allan Hill (3½ N.S.U.) ...	1 ...	85 × 88
72.	V. Underhill (3½ L.M.C.)	1 ...	85 × 88
73.	Cyril Cross (3½ L.M.C.)	1 ...	85 × 88
74.	H. P. Brown (5½ A.S.L.)	1 ...	85 × 85
75.	J. Waring (3½ Triumph-A.S.L.) ...	1 ...	85 × 88
*76.	W. H. Wanklyn (Ariel)	1 ...	85 × 85
77.	F. Phillip (3½ Scott)	2 ...	70 × 63
78.	F. A. James (2 Omega)	1 ...	75 × 70
79.	H. S. James (2 Omega)	1 ...	75 × 70
*80.	S. L. Bainbridge (3½ Humber) ...	1 ...	83 × 90
81.	A. C. Robbins (3½ Humber) ...	1 ...	83 × 90
	PASSENGER CLASS.		
*82.	A. R. Abbott (8 Matchless and sidecar)	2 ...	85 × 85
*83.	J. Tassell (6 Matchless and sidecar)	2 ...	70 × 95

*Denote private owners.

The following competitors' machines are fitted with change-speed gears: Nos. 8, 11, 12, 17, 18, 20, 26, 29, 30, 31, 32, 46, 48, 70, 71, 77, 80, 81, 82, and 83.

Couples competing for the Team prize are: 1 and 2, 7 and 8, 11 and 12, 29 and 30, 33 and 34, 41 and 42, 44 and 45, 48 and 49, 53 and 58, 60 and 61, 64 and 65, 66 and 67, 72 and 73, 74 and 75, 78 and 79.

A map of the route, with distances and a list of stopping places, will be found on the centre pages.

Open Hill-climb in Yorkshire.

A SPLENDID entry was received for the Bradford Motor Cycle Club's second annual open hill-climb at Cockshoot Lane, about three miles from Skipton, last Saturday, and an interesting competition, so far as hill-climbs go, was the result. The weather conditions in the morning could hardly have been more depressing, local thunderstorms were prevalent, and heavy rain clouds hovering about threatened to discharge a heavy load. This was not enough to stop motor cyclists and others interested from attending the event, and the conditions improving about midday, it is probable that over a thousand people witnessed the climbing. With reference to the venue of the climb, although we have great respect for the Bradford officials' care and forethought in formulating competition regulations fair to everyone, we cannot congratulate them upon the selection of Cockshoot Lane for a hill-climbing contest. In other words, it is by no means an ideal hill. Its severity is undoubted, but it is of too tortuous a nature, and, moreover, too narrow to encourage riders of fast motor cycles to climb it at speed, and no one was surprised that several suffered bad spills. The surface was good, and, fortunately, unaffected by the downpours. The measured distance of the climb would be about five-eighths of a mile. The chief award in the competition was a handsome silver challenge cup for fastest time, presented by Eric S. Myers, a popular member of the club. The practising was marred by an unfortunate accident, which might have proved much more serious than it did. Mr. Myers, excellent sportsman that he is, had spent some time tuning up one of his motor bicycles with the idea of lifting his own trophy, and incidentally settling a few good-natured differences with one or two of his trade rivals. But he was doomed to disappointment, for on his very first flight up the hill (everyone who saw him said he was "really flying") the rear tyre burst, pitching Mr. Myers over the handle-bars, and he was lucky to get off with a few bruises and a bad shaking.

A competitor at the last bend, where several riders came to grief. Competitors call this "bad selection of the hill"; officials call it "bad judgment in taking the corner."

Examination of the Competing Machines.

The Bradford club, it may be recalled, was the first organisation to seriously take up the question of standard machines in competition. A committee of scrutineers examined each machine at the weighing scales to ascertain whether it conformed to the regulations.

It was impossible for one person to observe the whole length of the hill, but below are a few notes we made at the steep stretch, halfway up the hill.

CLASS 1.—LIGHTWEIGHTS.

The lightweight machines were geared very low, yet found the 1 in 7 gradient a little too stiff. Hall (N.S.U.) appeared to travel fastest (he was afterwards disqualified), Clark (Douglas) was slow but sure, and Davey (Moto-Rêve) pedalled—a contravention of the rules—but he was nevertheless declared the winner.

CLASS 2.—STANDARD SINGLES.

Marshall (Triumph) was first up, and he created quite a stir, for hitherto the spectators—who, by the way, had persisted in meandering aimlessly about the road—had only seen low-powered machines. P. E. Tolfree (Matchless), hon. sec. of the Edinburgh M.C.C., followed, but both were allowed another attempt, as the telephone at the hill top had been placed some distance from the finish, and the competitors mistook the finishing point until the matter was rectified. Platt (Bradbury) travelled at a rare bat, the other performances being quite ordinary.

Open Hill-climb in Yorkshire.—

CLASS 3.—STANDARD TOURING TWINS.

Smith (Clyno) failed at the first attempt owing to his carburetter valve sticking. He (as well as other competitors who experienced a stop on the hill later in the afternoon) was generously allowed another try, but was by no means a flier. The energetic trials hon. sec., Felix Scriven (Rex), did much better. A couple of two-stroke Scotts in this event ascended the hill without apparent effort in their usual silky manner, a brand new standard 4 h.p. model ridden by T. Hargreaves beating F. Philipp's 5 h.p. machine.

CLASS 4.—STANDARD TWO-SPEED SINGLE-CYLINDERS.

In this and No. 5 event, competitors had to stop and restart on the gradient on being warned by an official with a red flag. W. Milnes (P. and M.) was first up, and he stopped and restarted very neatly. The other three competitors could not have read the rules carefully, for they fumbled in the restarting test and lost valuable seconds.

CLASS 5.—STANDARD TWO-SPEED TWINS.

Lord (Rex) caused alarm, but later considerable amusement at the stopping and starting test. He came up to the flag well, judged the stop to a nicety, and, on receiving the word to start, stamped on the low gear pedal, which caused the front of his machine to rear straight up for all the world like a bucking broncho. Lord exhibited no fears whatever, he coolly kept his place in the saddle, and got away in splendid style. The odd second Lord lost by in the placing was easily wasted in this little episode.

CLASS 6.—SINGLE-CYLINDER RACERS.

Marshall again led the vanguard, and his T.T. Triumph though geared 3¾ to 1, showed no perceptible slacking of pace except when the rider was obliged to switch off for the corners. Silencers were optional on racing machines, and Cockcroft, dispensing with his, created a rare din. Hugh Gibson, on his End-to-end sidecar record machine, stripped of all superfluous parts, did well. Bottoms came a cropper at the finish through looking round, but did nothing more than buckle his back wheel. Pitney (Rex) stopped once, but was among the fastest on his second trial.

CLASS 7.—TWIN RACING MACHINES.

Moorhouse (Indian) was agreed to be fastest on the steepest stretch, so that his time is unaccountable. Mackay (Rex) tore up the hill, wobbled dangerously at the top corner, recovered, and finished in fine style. Four well-known Bat riders had entered for this event —Bowen, the brothers Bashall, and Fenn—but all were absentees.

CLASS 8.—OPEN.

Some powerful monsters competed in the open class, and the spectators wisely allowed extra space at the corners. Moorhouse, the first rider up, again judged the corners nicely, and a moment or two later, another Indian rider, H. D. Shaw, drove the spectators' hearts into their mouths. He was admittedly miles the fastest of the bunch, and though he switched off and jammed on his brake some yards before the top bend, he could not clear the ditch, and rider and machine parted company, the former rolling over and over, but, to the astonishment of the onlookers, he immediately sprang up and walked to his machine which reposed in the ditch. J. Scriven, who was trying for the first time the paces of the new 7 h.p. twin Rex, took no undue risks, but was travelling at a great pace. Next Marshall came over through running on to sodden grass bordering the ditch. He made a gallant effort to right his machine after it commenced wobbling, but it finally shot from under him. Pluckily remounting, he made another ascent, but had obviously lost the nerve he displayed in former sprints. It was whispered that Marshall, anxious to regain some of his laurels, was "all out" for Mr. Myers's trophy, so his success was warmly received. Mackenzie-Cott had fitted new pistons and cut down the stroke of his 8 h.p. J.A.P. the day before the climb to bring it within the limit, so no surprise will be expressed when we say that his

T. Hargreaves (4 h.p. Scott) restarting in the Variable Gear Class. The gradient at this point is about 1 in 12.

Open Hil-cllimb in Yorkshire.—

Group of competitors outside the Devonshire Hotel, Skipton, where the results were announced.

performance was not so good as he and his machine are capable of. He was also quite naturally shy of the stone walls bordering the roadside.

The Complete Results.

The actual times and the positions of the competitors in order of merit are as under:

CLASS 1.—Lightweight motor cycles not exceeding 120 lbs. (standard).

G. E. Davey (2¼ Moto-Rêve)	1m. 14s.
Eli Clark (2¾ Douglas)	1m. 15⅘s.

W. E. Hall (2½ N.S.U.) made fastest time (1m. 9s.), but was disqualified, as his machine did not conform to the rules.

CLASS 2.—For standard pattern single-cylinder machines.

J. Marshall (3½ Triumph)	0m. 43⅗s.
P. Platt (3½ Bradbury)	0m. 49s.
P. E. Tolfree (3½ Matchless-J.A.P.) ...	0m. 53⅗s.
Geo. Wray (3½ Bradbury)	0m. 55⅕s.
J. Windle (3½ Triumph)	0m. 55⅗s.
W. Houghton (3½ Bradbury)	1m. 11⅖s.

CLASS 3.—Standard touring twins.

T. Hargreaves (4 Scott)	0m. 48⅘s.
F. Philipp (5 Scott)	0m. 58s.
F. Scriven (5 Rex)	0m. 58⅗s.
F. Smith (5 Clyno)	1m. 3⅕s.

CLASS 4.—Standard single-cylinder two-speeders.

P. Weatherilt (3½ Zenith-Gradua) ..	1m. 10⅘s.
H. Hands (3½ Rex)	1m. 23⅗s.
W. Milnes (3½ P. and M.)	1m. 31⅗s.
T. G. Bullus (3½ P. and M.)	1m. 50⅘s.

CLASS 5.—Standard twin-cylinder two-speeders.

F. Philipp (5 Scott)	1m. 13⅗s.
R. Lord (5 Rex)	1m. 14⅗s.
T. Hargreaves (4 Scott)	1m. 25⅖s.

CLASS 6.—Single-cylinder racing machines not exceeding 500 c.c.

J. Marshall (3½ Triumph)	0m. 38⅖s.
P. Cockcroft (3½ Triumph)	0m. 47⅕s.
F. E. Pitney (3½ Rex)	0m. 47⅗s.
Hugh Gibson (3½ Triumph)	0m. 48⅖s.
S. Grange 3½ Triumph)	0m. 50⅕s.
J. Bottoms (3½ Triumph)	1m. 8⅘s.
R. Ogle (3½ Triumph)	1m. 10⅗s.

CLASS 7.—Twin racing machines not exceeding 670 c.c.

F. Mackay (4 Rex)	0m. 46⅖s.
P. Butler (5 Dot-J.A.P.)	0m. 47s.
T. Hargreaves (5 Scott)	0m. 51s.
A. J. Moorhouse (5 Indian)	1m. 1⅘s.

CLASS 8.—Open to any motor bicycle with engine not exceeding 1,000 c.c.

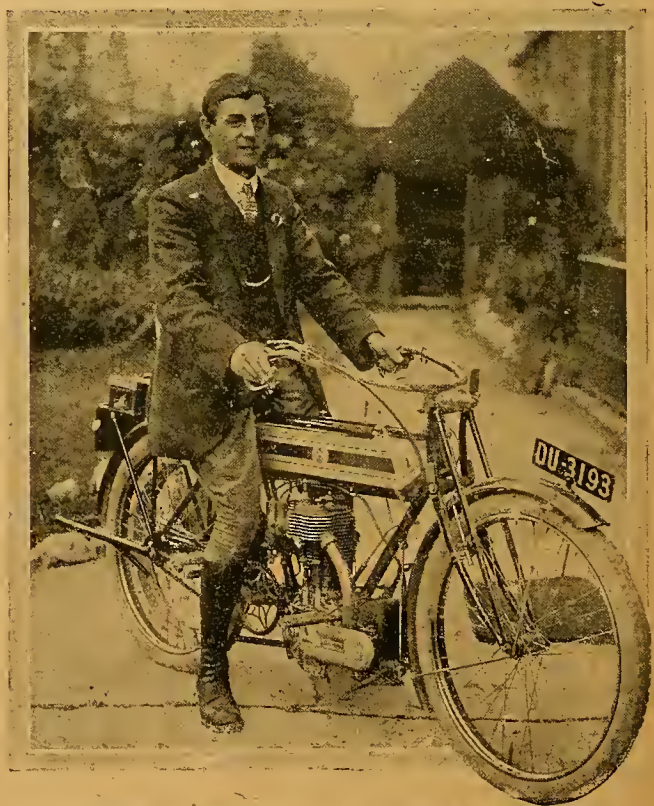
J. Scriven (7 Rex)	0m. 42s.
A. J. Moorhouse (5 Indian)	0m. 44s.
J. Marshall (3½ Triumph)	0m. 44⅘s.
S. Grange (3½ Triumph)	0m. 45⅕s.
P. Butler (5 Dot-J.A.P.)	0m. 47⅖s.
A. Mackenzie-Cott (8 King-J.A.P.) ...	0m. 47⅘s.
P. Cockcroft (3½ Triumph)	0m. 49⅕s.
T. Hargreaves (5 Scott)	0m. 51s.
G. Wray (3½ Bradbury)	0m. 56⅕s.

The foregoing results were announced at the Devonshire Hotel, Skipton, on Saturday evening.

Special amateur awards were as under: A pair of Michelin Trident tyres for fastest twin-cylinder machine outside Myers's trophy winner, won by J. Scriven (7 h.p. Rex); a pair of Palmer rubber-studded tyres and tubes for fastest single-cylinder outside trophy winner, S. Grange (3½ h.p. T.T. Triumph); a Lucas acetylene lamp for fastest touring machine not exceeding 750 c.c., P. E. Tolfree (3½ h.p. Matchless).

IMPORTANT STOP PRESS NOTICE.

On going to press, we are advised by telephone by the hon. sec. of the Bradford M.C.C. that the timekeepers have made an extraordinary muddle in the hill-climb times announced Saturday evening, and published on this page, and practically all are incorrect. Their excuse is that they hurried unduly to oblige the competitors, and, moreover, they were not used to working together. J. Scriven (7 h.p. Rex) wins the Eric S. Myers Trophy for fastest time. The revised and checked results give the following class winners: Class 1, Eli Clark; Class 2, J. Marshall; Class 3, Felix Scriven; Class 4, P. Weatherilt; Class 5, F. Philipp; Class 6, J. Marshall; Class 7, A. J. Moorhouse; Class 8, Jack Scriven.



J. Marshall (3½ h.p. Triumph), winner of the two single-cylinder classes.

Inter-'Varsity Racing at Brooklands.

NOW that Brooklands is getting so busy, fine weather cannot always be expected for every kind of meeting that is held there, but 'ements might well have been a little better disp last Saturday, when teams representing the Universities of Oxford and Cambridge came down to contest car and motor cycle events. The drenching downpour, which lasted from the beginning of the meeting until the end, and was continuous except for very, very brief intervals, accounted not only for a very sparse attendance of spectators, but also no doubt for the fact that a rather large proportion of the competitors failed to put in an appearance. Apart from the unpleasantness of the weather, which was really as bad as it well could be, the racing was never very exhilarating, so that the meeting can hardly be written down an unqualified success.

The Selection Trial.

The first event was the Oxford Cycle Eliminating Race over a distance of five and threequarter miles, and the first six riders past the post were to be eligible to compete against the Cambridge team in the Inter-'Varsity Race. The handicaps were based on the cubic capacity of the engines, twin-cylinder motors being calculated at two-thirds of their actual capacity. The scratch machines were two V.S. which were to have figured in the Cambridge Eliminating Race, but of which the owners did not turn up. Out of eleven entrants, only six put in an appearance and faced the starter. These were:

G. P. L. Henderson (two-cylinder Matchless)	0m. 6s.
E. D. Tate (Triumph)	0m. 48s.
A. F. M. Stevenson (two-cylinder Clyno) ...	0m. 51s.
D. B. Rea (Moveo)	0m. 54s.
M. K. Mackenzie (Triumph)	1m. 0s.
W. J. Frings (two-cylinder N.S.U.) ...	2m. 20s.

Tate, whose Triumph was a very racy-looking machine with a specially small torpedo tank and minus guards, soon overhauled the rest of the field and won by a mile and a half. Frings, whose 3½ h.p. twin N.S.U. was stripped to the last ounce, stood a good chance of winning this event, but failed to start until the race was practically over. Tate's speed of 49½ m.p.h. was by no means bad considering that the track was practically under water. Henderson was second, Rea third, and Mackenzie fourth. Stevenson came in very late, and Frings finished just before the next race started.

The Cambridge Cycle Eliminating Race brought out a couple of Indians which put up a good fight. Out of fifteen entrants five riders only put in an appearance, so that as far as the eliminating part of the race went this event, like the previous one, performed a work of supererogation. The starters were:

C. K. Wigram (two-cylinder Bat)	0m. 24s.
N. Gray (Triumph)	0m. 48s.
E. D. Dickson (two-cylinder Indian) ...	0m. 54s.
C. Perrens (two-cylinder Indian) ...	0m. 54s.
J. Ashworth (Minerva)	1m. 40s.

The two Indian machines got away in good style, and leaving the field splashing through the wet behind them made a close finish, Dickson winning by twenty yards. Gray was threequarters of a mile behind, and Ashworth half a mile behind him. Speed, 58 m.p.h.

The result of the contest was an easy win for Dickson (Cambridge), with Tate (Oxford) second, but over a mile behind. Perrens would have been a close second but his magneto was literally drowned, and within a quarter of a mile from the finish he was obliged to dismount and walk home. Gray (Cambridge) was third, Ashworth (Cambridge) fourth, Mackenzie (Oxford) fifth, and Henderson (Oxford) sixth. As the first cycle past the post scored eleven points for its University, the second ten, and so on, Cambridge won this contest easily by 28 points against 23.

The Cambridge team, winners of the Inter-'Varsity contest at Brooklands. This usually interesting event was spoiled by continuous rain.

A.C.U. INTER-CLUB CHAMPIONSHIP ELIMINATING TRIAL (Metropolitan Centre.)

The results of the above trial were to have been decided on Saturday last from Beaconsfield, but rain, poor support, and an insufficient number of officials caused a fiasco. Only three teams competed, and of these the Herts County A.C. (motor cycle section) was the only one to send a complete team. The North-west London M.C.C. sent five competitors, and the Essex Motor Club only four. The A.C.U. was represented by Messrs F. Straight, H. P. Beasley, and H. B. Renner. The route was typed on foolscap paper, which was almost immediately reduced to pulp by the rain. After much discussion, it was decided to start the trial, but as the route had not been previously marked Beasley left to put up some arrows.

A late start was made, and the first competitor, C. C. Cooke, of the Herts team, about twenty miles from the start was hopelessly lost in a wilderness of lanes which were little better than sheep tracks strewn with stones and sand. Other competitors then came up, and a halt was called for a consultation. It must be remembered that the rain was all the time coming down in torrents, so the plight of the competitors can be imagined.

On enquiry of the local people, it was found that some of the places mentioned on the route sheet were not known. It was ultimately decided to proceed to Missenden and Chesham, and then return to Beaconsfield, where the trial was abandoned.

AUTO CYCLE UNION

LAND'S END TO JOHN-O'-GROAT'S TRIAL.

JULY 4th to 9th.

THE route and details in connection with next week's annual six days' reliability trial of motor cycles are clear from the accompanying map and details. Readers residing in the locality of the End-to-end route may select a point from which to see the competitors pass by, following one or other of the dotted lines close to the route. The route line is numbered, the figures representing the day on which the particular stretch marked will be traversed. A complete list of the entries will be found on page 607.

Below we give the daily programme:

MONDAY.
Leave Penzance (Union Hotel) ... 6.30 a.m.
Leave Land's End ... ... 8 a.m.
Arrive Launceston (lunch White Hart Hotel)
Distance, 85½ miles.
Leave Launceston
Arrive Taunton (London Hotel)
Total distance for day, 159 miles.

TUESDAY.
Leave Taunton ... ... 8 a.m.
Arrive Worcester (lunch Star Hotel)
Distance, 107 miles.
Leave Worcester
Arrive Warrington (Patten Arms)
Total distance for day, 202½ miles.

WEDNESDAY.
Leave Warrington ... ... 8 a.m.
Arrive Kendal (Railway Hotel)
Distance, 72¼ miles.
Leave Kendal
Arrive Moffat (Buccleuch Arms)
Total distance for day, 158¾ miles.

THURSDAY.
Leave Moffat ... ... 8 a.m.
Arrive Stirling (Station Hotel)
Distance, 75½ miles.
Leave Stirling
Arrive Pitlochry (Scotland Hotel)
Total distance for day, 183 miles.

FRIDAY.
Leave Pitlochry ... ... 8 a.m.
Arrive Speans Bridge (Speans Hotel)
Leave Speans Bridge
Distance, 78½ miles.
Arrive Inverness (Station Hotel)
Total distance for day, 160½ miles.

SATURDAY.
Leave Inverness ... ... 8 a.m.
Arrive Golspie (Lovatt Arms)
Distance, 85½ miles.
Leave Golspie
Arrive John-o'-Groat's
Total distance for day, 157¾ miles.
Return to Wick (Meredith's Hotel)
Total distance, 1,021½ miles.

The time schedule is worked out on a basis of minimum speed of eighteen miles per hour, and maximum speed twenty miles per hour. Certificates and gold and silver medals will be awarded to the entrants of machines which may show sufficient merit in the opinion of the judges.

for the best performance by a private owner in the bicycle and passenger classes.

Specially prepared by THE MOTOR CYCLE

"THE BATTLE OF THE CYLINDERS." THE ATTACK ON "FATHER TIME" BY THE MOTOR CYCLE ARMY. (SEE PAGES 602-607.)

Lighting-up Times.

The times to light lamps for this week are as under:

June 30th	... ...	9.18 p.m.
July 2nd	... ...	9.18 p.m.
,, 4th	... ...	9.17 p.m.
,, 6th	... ...	9.16 p.m.

Police Traps.

On the London to Chatham Road, just beyond Welling. Strict legal limit should be observed from Shooter's Hill to Bexley.

The Team Prize in the Six Days' Trials.

In connection with the End-to-end reliability trial, a special prize will be awarded for the best performance of a team of two machines entered or nominated by a trade representative. Hitherto, teams of three have competed for the team prize.

The A.C.U. Six Days' Trials.

From the double-page map in the centre of this issue readers residing in the locality of the End-to-end route will be able to see at a glance the nearest and best point at which the competitors in the End-to-end run may be seen. This year's total distance is 1,021½ miles—the longest officially observed open reliability trial to date.

Good and Bad Roads.

The dust on the roads from Leeds to Doncaster is simply appalling, as competitors in the Leeds-London-back run found to their cost. As a contrast the roads from Doncaster to Retford are a great improvement in this respect, and the dust causes very little inconvenience. It would appear that those responsible for the condition of the roads south of Doncaster could supply some useful information to the road authorities in some portions of the North. A similar state of affairs exists in many parts of the country. One can travel fast over a stretch of road without creating any dust, and suddenly run on to a stretch of road which causes the dust to be scattered in all directions. Again, after continued rain, some roads are dangerously greasy, while others remain comparatively dry. Do not these conditions prove the need for a central authority to carry out experiments and govern the upkeep of the roads?

Inter-club Meet in the South.

"R.S.H.'s" suggestion in *The Motor Cycle* of June 9th for a general meeting of clubs and motor cyclists south of the Thames has drawn forth a further reply from R. Port, assistant hon. sec. of the Winchester and District M.C.C., which club will be pleased to help forward the suggestion. The Surrey M.C.C. has already promised its support, and it is also understood that the Western District M.C. (London) is favourable to the proposal. We should recommend the secretaries of clubs named to get into communication with one another and fix upon a suitable date for the meeting.

Two Motor Cycles Stolen.

Motor cycle thefts are increasing. Two machines were stolen from Cox's Motor Garage St. Andrew's Hill, Cambridge, on the 24th. One is a 1909 Triumph with brass acetylene gas lamp and generator; the other is a new free engine Excelsior with Lucas plated lamp and generator, and Lucas horn. The thieves left the garage about 5 a.m. on the 24th, and took care to equip themselves with two new air tubes, two new belts, and a spare cover, besides a number of tools.

The Road Board.

In connection with the newly-appointed Road Board, we are glad to state that Mr. W. Rees Jeffreys (late secretary of the Motor Union) was offered and has accepted the post of permanent secretary. Col. R. E. B. Crompton, C.B., is the engineer.

A Warning.

Mr. William Corcutt, London Road, Doncaster, writes to warn speed men of all kinds that it will be wise for them in future to ride considerately through Doncaster, and thus help all concerned to keep this town a "clean" place on the Great North Road, as it has always been hitherto.

Brooklands July Meeting.

The B.A.R.C. has decided to cancel the meeting which was to have been held on the 13th and 14th of July. This decision has been arrived at owing to the Bournemouth Fetes, as the B.A.R.C. does not wish to attract aviators to Brooklands on these dates.

The M.C.C. Team Competition.

Mr. J. Van Hooydonk, hon. secretary for the M.C.C. team trials for *The Motor Cycle* Cup, wishes to thank, on behalf of the club, the many willing helpers who gave their assistance on June 18th. The Motor Cycling Club also wishes to express its hearty appreciation of the way in which it was assisted by the Daventry police, who did everything they possibly could to make the event a success.

Two members of the Oxford M.C.C. team changed numbers after the programmes were issued, viz., J. Aldworth (3½ h.p. Kerry Abingdon) and J. F. Salter (3½ h.p. Triumph). The latter scored 90 and the former 100 marks.

M.C.C. Petrol Consumption Trial.

THE M.C.C. seems particularly unfortunate in regard to weather when it holds a petrol consumption trial. Last year's event was marred by atrocious weather, and this year's event, held on Saturday last, was run under even worse conditions; at least, the weather for two or three hours previous to the appointed time for starting was bad, which doubtless stopped many of the entrants

H. Karslake (two-speed Dreadnought) victor in Class 1. of the M C.C. petrol consumption test.

from turning up. As it was, the journey out to Northwood —the scene of the start—was made in stages owing to the rainstorms, with the result that many competitors arrived late. However, the organisation of the event was so perfect in other respects that once the men were gathered together it was an easy matter to despatch them. This year a new course was selected, starting from Northwood, near Pinner, Middlesex. The new circular course was an ideal one, taking in Rickmansworth Hill (competitors rode down this hill and up a long gradient the other side), the distance per circuit being four miles. The event was divided into three classes—(1) for single-cylinder motor bicycles, (2) for multi-cylinder motor bicycles, and (3) for passenger machines and cars—but of the thirteen entered in Class 1 only six faced the starter (Mr. R. H. Head). Four started in Class 2, and five in Class 3, two of which were sidecar combinations.

The Petrol Allowance.

Regarding allowances of petrol, this was arranged on the previous year's table, viz., at the rate of one pint for 300 lbs. total weight, increasing to one and a half pints for 600 lbs., and two and a quarter pints for 1,200 lbs., due allowance being made for intermediate weights. Multi-cylinder machines in Class 2 over 150 lbs. in weight were allowed thirty per cent. extra spirit. As it happened, all four of the machines in Class 2, including two Douglas machines (which were apparently weighted up), weighed well over 150 lbs., and the extra allowance was not given, which accounts for the poor performances of multi-cylinder machines compared with some of the singles.

The actual start was made from the True Lovers' Knot Hotel, Northwood, approximately one mile from the actual start of the circuit, so that five miles were covered in the first round.

The first to fall out was A. Mabon (3 h.p. Mabon and sidecar), who, we observed, had his machine fitted with his new and ingenious infinitely variable gear. He suffered from an air lock, and never got properly started. Noel Hans Hamilton was the next to stop, with slipping clutch, when only half-way round the first circuit. Godsal (6·7 h.p. Bat) was the third to drop out after covering one complete circuit and 1¼ miles of the second, making the total distance covered 6¼ miles. Bell, who had entered in Class 1, turned up on his four-cylinder F.N., and was allowed to start in Class 2. He ran on three cylinders only the whole way, a refractory plug refusing to spark. His machine, however, was accommodating, since it stopped at the finish of the second circuit after having covered nine miles exactly. Fletcher, on a two-speed Douglas, managed to squeeze in eleven miles, and Robinson, on the other Douglas, 13½; meanwhile, Holroyd (Motosacoche) had finished at 10¼ miles, the only one so far in Class 1 to fall out.

A Sidecar Wins Class 3.

Colyer (3½ h.p. Humber and sidecar), with two cars and Mabon out, was left winner of his class, and he eventually covered 14½ miles.

With Classes 2 and 3 finished, interest was centred on the single-cylinder machines. De Lissa (Motosacoche), Pratt (lightweight Phelon and Moore), B. Marians (Phelon and Moore), Karslake (Dreadnought), and Hill (Kerry) all safely completed four circuits, and disappeared from view; but the fifth lap was to be the decider. Marians and Hill both ran out of the precious sprint at the top of Rickmansworth Hill, and Marians was able, by taking greater risks down the hill, to coast further than Hill, so just beating him. Marians covered 18¼ miles. De Lissa managed to crowd in 21 miles, finishing within a stone's throw of the end of the fifth circuit. Pratt improved on this distance by one and a half miles; but Karslake, on his ancient war horse Dreadnought, was still going strong, and eventually came to rest at 24½ miles. He rode with an abnormally high gear, with a low gear for emergencies, and his engine has an auxiliary exhaust port at the bottom of the stroke. Results:

Class 1. Rider and machine.	Petrol allowance. ozs.	drms.
1 (Gold medal). H. Karslake (4 Dreadnought)	23	4½
2 (Silver). W. Pratt (2½ P. and M.)	19	5
3 (Bronze). O. L. De Lissa (1½ Motosacoche)...	19½	0

W. Pratt (lightweight P. and M.) travelled 22½ miles on an allowance of 19 ozs. 5 drms. of petrol, gaining the second award.

M.C.C. Petrol Consumption Trial.—

CLASS 2.

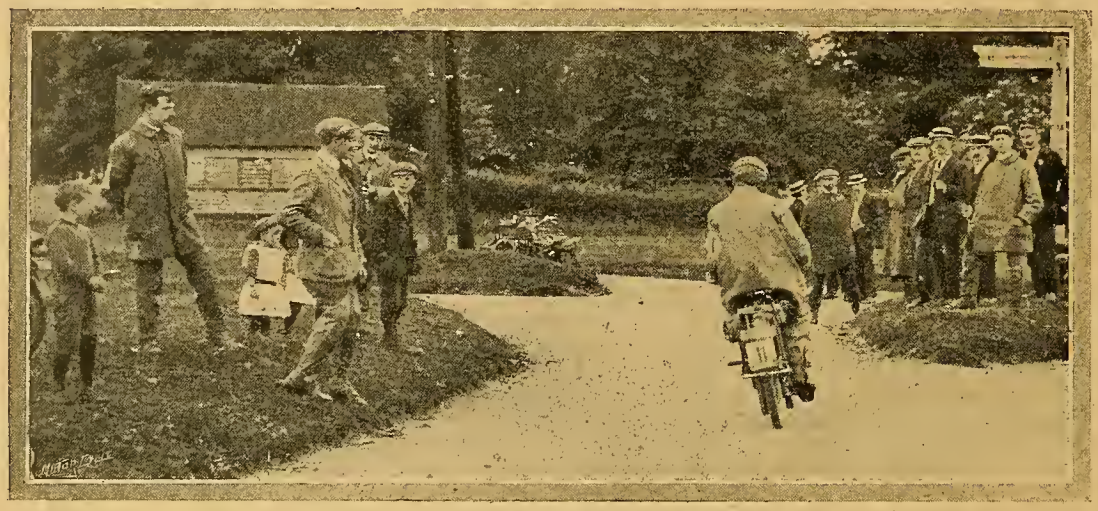
1.	J. V. Robinson (2¾ Douglas)...	21	1
2.	G. L. Fletcher (2¾ Douglas)	21	3
3.	H G. Bell (5-6 four-cylinder F.N.)... ...	22	7

CLASS 3.

1.	A. L. Colyer (3½ Humber and sidecar) ...	32	3
2.	T. Pears (15 Rover car)	32	5
3	A. Meschini (20 Rover car)	32	5

Petrol consumption trials, although very interesting as a proof of the great distances that can be covered on a motor cycle with a very small quantity of petrol, do not attract the members of the M.C.C. like some of their other competitions. The event, however, was well arranged and organised.

Mr. Jenkins was responsible for the organisation and clerical work in connection with this event, and was ably assisted by Mr. F. T. Bidlake (timekeeper), Mr. Head, Dr. Clifford Gibbons, and Captain Dickson, whose garage was placed at the club's disposal for weighing, etc.



B. Alan Hill (Kerry-Abingdon) competing in the M.C.C. Petrol Consumption Trial. Many competitors and others from the abandoned A.C.U. "Club Championship" witnessed the M.C.C. Trial.

CLUB NEWS.

Western District M.C. (London).

In the hill-climbing competition on Dashwood Hill on the 18th inst. F. H. Mullett (1910 Touring Triumph) was first in the single-cylinder class and second in the racing class. The first competitor in the racing class was F. W. Ritchie (5 h.p. Indian).

North-west London M.C.C.

Owing to a desire expressed by the general body of members, the committee has decided to hold a speed-judging competition on July 2nd, in place of a gymkhana, as arranged. The start will be from the Duke of York Hotel, just beyond Barnet, on the Hatfield Road.

Nottingham and District M.C.C.

The speed trials which were down for July 2nd are postponed, and in place thereof the committee have been allowed the privilege of the use of the Hardwick Hall Drive for a hill-climb on Saturday next, for the Percy Johnson Cup. The entrance fee for the hill-climb is 2s. 6d., pre-paid before Friday next.

Leicester and District M.C.C.

The route chosen for to-day's reliability trials is Newtown Linford, past Grueby Pool, through Grueby, Markfield, past Ulverscroft Grange, and back to Newtown. Competitors must assemble at 2.30 p.m., to start at 3 p.m. promptly. There will be prizes for the three best performances. The course will be negotiated six times. Chief marshal, Dr. C. B. Moss Blundell (captain); competition secretary, W. Carrington.

Bolton and District M.C.C.

The following are the results of the two days' reliability run to Grasmere: J. Fishwick (3½ h.p. Triumph), 93 points; J. H. Green (3½ h.p. Runwell), 87; Norman Haddock (3½ h.p. P. and M.), 82; L. R. Hardman (3½ h.p. T.T. Triumph), 82; F. Lucas (3½ h.p. Triumph), 75. P. J. Foster (3½ h.p. P. and M. and sidecar) lost all points through punctures and retired.

Prizes were given to the first four competitors. Each rider started with 100 points, five were deducted for each stop, one for each minute late or early at controls, and there were three secret checks.

Birmingham M.C.C.

A week-end run is arranged for July 16th and 17th, as the last run proved so successful. Builth is to be the venue this time, whilst on July 30th a four days' tour is arranged with Bournemouth as the goal. On July 9th a novel hill-climb is to take place, each competitor to ride the same machine, and a speed-judging contest is to be held on July 23rd on somewhat novel lines.

Westmoreland M.C.C.

The above club held a non-stop run on Thursday last of about eighty miles for Triumph medals. The course included some bad and steep by-roads. Sixteen competitors started, and on completion it was found that three had gained full marks, viz., two Triumphs and one Bradbury. These three were sent round the full course a second time, but all three managed to gain full marks again, which made it necessary to re-run it on Saturday last, speedometers and watches being barred. Final: A. M. Somavell and W. Westwood (Triumphs) tie; 3, H. Harrison (Bradbury).

Newcastle M.C.

A reliability run for motor cars and motor cycles from Newcastle-on-Tyne to Edinburgh and back on the coast route, a distance of 222 miles, was held by the Newcastle Motor Club on Thursday last, this being the fourth annual reliability trial for the Lucas Challenge Bowl. Two cars and twelve cycles were entered for the competition, and one competitor dropped out of each class. The competitors were judged on their previously declared time, which varied at the option of the rider from eighteen to twenty miles per hour, and medals were given for points as well as for those finishing within schedule time. The latter numbered nine and were as follows: H. Mason (4½ h.p. Bercley), J. R. Robson (3½ h.p. Excelsior), D. U. Wright (3½ h.p. Dene), A. Clark (3½ h.p. Dene), J. Adams (3½ h.p. Excelsior), D. Daglish (4 h.p. Antoine), R. Rowntree (3½ h.p. Bradbury), and W. H. Peel (4½ h.p. J.A.P.) The awards for the challenge bowl and the special prizes will be made after the time sheets from the various controls have been gone through. Messrs. Arthur J. Lucas and A. Parkin were the judges, and the timing was carried out by Mr. William Dunn, secretary to the club. The event was carried out in the best of weather, and proved very successful and enjoyable.

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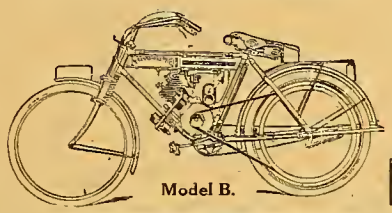
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Sheffield and Hallamshire M.C.C.
Flying Kilometre, June 11th.
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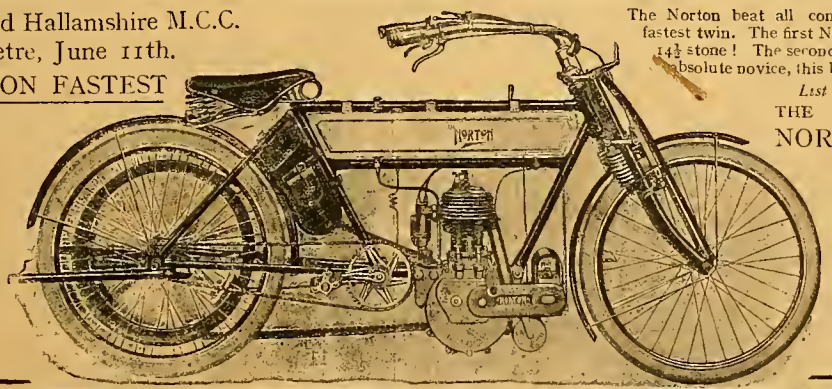
Class 3, NORTON 1ST.



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Club News.—

Ayr and District M.C.

On the evening of the 22nd the third hill-climb of the season took place at Benguhat, a mining village sixteen miles from Ayr. Fifteen members were present, and got caught in a thunderstorm which broke over the district just as the competition commenced. The results were based on the formula $\frac{W}{T \times D^2 N \times \sqrt{S}}$, and are as follow:

		Time in seconds.	Figure of merit.
1.	J. Johnston (3½ h.p. Triumph) ...	70 ...	12836
2.	T. L. Rankine (3½ h.p. Bradbury)	64 ...	13693
3.	J. Robertson (3½ h.p. Triumph)...	74 ...	13901

Special prize for fastest time was won by T. L. Rankine.

South Devon M.C.C.

The above club held its first hill-climb on the 18th inst., on Moorshop Hill, near Princetown, Dartmoor, the average gradient being 1 in 5½. The competitors were started off by Captain W. J. Gordon, whose enthusiasm and courtesy greatly contributed to the success of the competition. The fastest time of the day was made by T. Trinaman on a 7 h.p. V.S., time 1 min. 25 secs. The results on formula were as follows:

Single-cylinder Class.—1, H. King (3½ h.p. Triumph); 2, H. W. Oliver (3½ h.p. Triumph); 3, P. O. Penrose (3½ h.p. Triumph); 4, R. Birkett (3½ h.p. Triumph); 5, S. King (3½ h.p. Triumph); 6, W. J. S. Bament (3½ h.p. Triumph); 7, R. H. Smith (3½ h.p. Triumph); 8, W. H. Tidbould (3½ h.p. Quadrant); 9, F. Arnfield (3½ h.p. Rex); 10, H. Terry (4 h.p. Roc).

Twin-cylinder Class.—1, H. Shires (6-7 h.p. Bat); 2, V. B. Hilton (8 h.p. Bat); 3, T. Trinaman (7 h.p. V.S.); 4, C. R. Roberts (5 h.p. Vindec); 5, V. O. Ratcliffe (9 h.p. Bat); 6, C. Dearden (5 h.p. Indian).

Leeds M.C.C.

The complete result of the Leeds to London and back reliability trial has now been announced, as follows:

1 (trophy and gold medal)—Wilkinson and Scott (both on 3½ h.p. Triumphs) tie; they will each hold the trophy for six months, and will each receive a gold medal.

3 (gold medal)—F. K. Langton (3½ h.p. Triumph).

4, 5, and 6 (silver medals)—Wheater (3½ h.p. Humber), Ellis (3½ h.p. Calthorpe), and Kitchin (Scott).

Bronze medals—Braithwaite (3½ h.p. Triumph), Ramsden (7 h.p. S. and R.), Heaton N.S.U.), Noney (3½ h.p. Triumph), Speke (7 h.p. S. and R.), Kelly (2¾ h.p. Moto-Rêve), Cockcroft (3½ h.p. Triumph and sidecar), Burnell (3½ h.p. Humber), Murphy (5 h.p. Rex and sidecar), and Brook (3½ h.p. S.P.K.)

The special gold medal for the sidecar class was won by S. Graham (3½ h.p. Triumph and sidecar).

The Leeds to Edinburgh and back reliability ride is to take place on Saturday and Sunday, July 23rd and 24th.

Scarborough and District M.C.

The second monthly hill-climb was carried out successfully on Wednesday, the 15th inst. The electrical timing apparatus, provided and worked by Mr. J. W. F. Tranmer, proved a great boon, the telephonic communication being decidedly useful. There were twelve competitors, and they were judged on the A.C.U. formula. Each man was allowed two attempts, his better time being taken. The times were recorded by Mr. Topham. The hearty thanks of the club are due to all those who so kindly assisted in making the climb a success. Results:

Class 1.—Lightweights.

		Time.	Fig. of merit.
1.	E. Castlehouse (2 N.S.U.) ...	65s. ...	66
2.	F. H. Mason (2 Moto-Rêve) ...	86⅘s. ...	100

Class 2.—Singles.

1.	S. H. Clay (3½ Triumph) ...	58⅖s ...	81
2.	W. Woodall (3½ Triumph) ...	64⅕s. ...	90.41
3.	G. E. Wilkinson (3½ Triumph) ...	57⅗s. ...	90.48

Class 3.—Twins.

1.	J. Hornby (3¾ Premier)	47s. ...	72
*2.	J. Wilks (3¾ Premier)	45⅗s ...	74
3.	Dr. Forman (6 N.S.U.)	50⅖s. ...	106

Class 4.—Heavyweights.

1.	N.E. Railway char-à-banc	4m. 37⅗s.

*Fastest time.

Bradford M.C.C.

Felix Scriven (3½ h.p. Rex) has been declared winner of the Wm. Briggs Trophy offered in the Bradford-London-Bradford twenty-four hours trial referred to in our last issue.

Glasgow M.C.C.

The above club will hold a twelve hours reliability trial on Saturday next. The course will be as follows: Start at Cannisburn Toll (near Bearsden) and proceed by Duntocher, Alexandria, Ardlui, Crianlarich, Killin, Kenmore, Aberfeldy to Pitlochry, then return to Aberfeldy, Amulree, Crieff, Yetts-o'-Muckhart, Stirling, Kippen, and Drymen to Bearsden. Approximate total distance 204 miles. The start will be at 8 a.m. Competitors will be despatched in couples. The trial will be conducted on a twenty miles per hour basis. Lunch will be at Pitlochry, during which time the machines will be in charge of officials, and no repairs whatever will be allowed. Entries close to-day (Thursday), and should be sent to Mr. A. Gordon Bostock, Students' Union, University, Glasgow.

Middlesbrough and District M.C.C.

The fourth annual competition for the Gjers Cup was run off in a most satisfactory manner on Wednesday, June 22nd. The competitors (eighteen in all) started from Marton Bungalow about 8 a.m. in brilliantly fine weather, and proceeded round the course of 205½ miles, viz., Guisborough, Whitby, Scarborough, Malton, and York. At the latter place the competitors had one and a half hours interval, in which time lunch was partaken; they then proceeded to Tadcaster, Pateley Bridge, Harrogate, Ripon, Leyburn, Northallerton, returning *via* Clack Lane Ends, Tontine, and Leven Bridge. The results are:

1.	Evan Rees (3½ h.p. Triumph)	85 marks.
2.	H. Fairgrieve (3½ h.p. Triumph) ...	83 ,,
3.	J. G. Fairgrieve (3½ h.p. Triumph) ...	79 ,,
4.	E. Young (3½ h.p. Bradbury) ...	71 ,,
5.	J. Telford (3½ h.p. Triumph)	69 ,,
6.	J. Gilchrist (3½ h.p. Zenith Gradua)...	65 ,,
7.	F. C. Jones (3½ h.p. Quadrant) ...	61 ,,
8.	W. A. George (3½ h.p. Rex)	59 ,,
9.	W. B. Cobb (2½ h.p. Enfield)	44 ,,
10.	R. Hewitt (2½ h.p. Enfield)	27 ,,
11.	G. Bellerby (5½ h.p. Viadec)	22 ,,

The prizes are: Winner to hold Gjers Cup for a year and receive club gold medal; 2nd, Armstrong prize value £1 1s.; 3rd, club silver medal; 4th, motor cycle horn presented by Messrs. Oliffe and Co. Seven other riders who finished within schedule time will receive club bronze medals.

Surrey M.C.C.

A petrol consumption competition was held on the 22nd inst. over a circular course of thirty-six miles. The route was from Guildford to Surbiton, by way of Ripley, thence through Hook to Leatherhead, and home by Horsley and Clandon. There were twelve starters out of sixteen entrants. The figure of merit was determined by the formula $\frac{\text{Weight of rider and machine}}{\text{Consumption of petrol (ozs.)}}$ with an addition of 20 per cent. for multi-cylinder machines. The result was as follows:

		Miles per gal.	Fig. of merit.
1.	Frank Smith (6 J.A.P.)	118 ...	1.097
2.	H. R. Owtram (3½ Triumph) ...	145 ...	979
3.	J. A. Manners-Smith (3½ Triumph)	137 ...	857
4.	R. Ranger (2⅜ Douglas)	145 ...	838
5.	Rev. R. Measures (3½ Triumph)...	144 ...	795
6.	H. Mitchell (3½ Triumph)	124 ...	788
7.	E. Cox (3½ Zenith-Gradua) ...	115 ...	780
8.	C. J. Feeny (3½ Triumph) ...	113 ...	725
9.	J. H. Sparks (3½ Triumph) ...	116 ...	718
10.	G. S. Williams (3½ Arno)	107 ...	703
11.	L. Kennard (1¼ Motosacoche) ...	144 ...	650

Mr. P. Mitchell (2¼ F.N.) was easily first on formula, his consumption being at the rate of 202 miles per gallon, but for some reason he went the reverse way round the course and was thereby disqualified.

In the twelve hours reliability trial, held on the 1st inst., two competitors tied for first place. It has now been decided to award a gold medal to each, while the McNab Cup is to be offered as a prize in another reliability trial to be held in August.

Club News.—

Newport (Mon.) and District M.C.C.

The following runs have been arranged: Thursday, June 30th, to Hereford; Saturday, July 2nd, to Hereford, leaving headquarters at 2.30; Sunday, July 3rd, Worcester, leaving headquarters at 10 a.m.

Inter-club Hill Climb.

Next Saturday, the annual motor cycle inter-club hill-climb of the Derbyshire and North Staffs. and Mid-Staffs. Automobile Clubs and the University of Birmingham Motor Club is to be held near Oakamoor for a silver challenge cup presented by Mr. Francis A. Bolton, J.P. The competition commences at one o'clock.

Middlesbrough and District M.C.C. 200 Miles Reliability Trial. Competitors nearing the top of Ormesby Bank, a very long and gradual ascent, four miles from Middlesbrough, often used for hill-climbing trials.

Bath Cycling Club (Motor Section.)

The first competition took the form of a speed-judging contest. Competitors had to ride over a half-mile course at two speeds, twenty and thirty miles an hour, the winner being the one whose aggregate time was most nearly correct. Twenty-one competed, and the event was most interesting. The winners of the three prizes offered were as follow:

1. C. Wilson (3½ h.p Humber) ... ... 4s. out
2. T. C. Leaman (3½ h.p. Triumph) ... 4⅕s. out
3. Eli Clark (2¾ h.p. Douglas) ... ... 5⅖s. out

One competitor actually rode "on time" over the thirty mile an hour section. The section boasts of over forty members, the club runs are well attended, and the hill-climb arranged for July 9th and future competitions are being eagerly looked forward to.

Durham Motor Cyclists Congregating.

A motor cycle club has been formed in Durham and district; the proposed subscription is 4s., which will include affiliation to the A.C.U. The secretary *pro tem.* will be pleased to receive communications from motor cyclists in the district, when a general meeting will be held to elect officers and committee. The secretary *pro tem.* is R. W. Holmes, Dunster House, Durham.

Walthamstow M.C.

The above club held its third annual competition for the dinner cup last week over a course of ninety-two and a half miles on the London-Newmarket road and back to Thornwood, near Epping. Out of a total of fourteen competitors, twelve succeeded in making non-stop runs, and qualified for the gold centre silver medal. The winner of the cup was decided by secret timing at a milestone on the route. J. Henbrey, on a 7-9 V.S. sidecar, succeeded in winning, being only 9⅖ seconds out. He has been declared winner of the gold medal and holder of the silver dinner cup. The following qualified for medals: G. West (5 Rex and sidecar), F. A. Applebee (5 Rex and sidecar), D. Fairhead (5 Peugeot and sidecar), J. W. Percival (6-7 Fafnir Royal tricar), R. J. Lisles (5½ Humber tricar), W. S. Low (3½ Rex), H. J. Beal (3½ Rex), A. A. Blanks (3½ Rex), W. Cooper (3½ Bradbury), A. T. Stanton (3½ h.p. Bradbury), A. G. Peppercorn (3½ Triumph). S. McMinn (6-7 Phänomen and sidecar) and J. H. Kerr (5 Rex and sidecar) punctured.

Pontefract M.C.

The hill-climb for the Robson Trophy was held at Minsthorpe Hill, Moorthorpe. Messrs. J. R. Kelly, Langton, and "Harry fra' Leeds" (of the Leeds M.C.C.) kindly acted as handicappers and judges. At the close of the contest the competitors and their friends were entertained to tea by the president of the club, Colonel J. R. Shaw, at his residence, Elmsall Lodge, when Mr. Kelly declared the official times (gross) as follows:

Class A.—Lightweights.

R. F. Turner (1½ Motosacoche, 1910) ... ... 67⅖s.
C. P. Finn (2¼ Royal Enfield, 1910) ... ... 54s.

Class B.—1909 and 1910 Single-cylinders.

Will Bentley (3½ Triumph, 1909) ... ... 48s.
E. Lee (3½ Triumph, 1909) ... ... 48⅘s.
C. C. Moxon (3½ Phelon and Moore, 1909) ... 71⅗s.
W. C. Smith (3½ Phelon and Moore, 1909) ... 61⅒s.

Class C.—1908 and Previous Models, Single-cylinders.

E. M. Dolan (3½ Triumph, 1908) ... ... 56⅖s.
Horace Bentley (3½ Triumph, 1908) ... ... 50⅕s.
E. Vaux (3½ Triumph, 1908) ... ... 51⅗s.
H. Holmes (3½ Triumph, 1908) ... ... 56s.

Class D.—1909 and 1910 Twins and Two-strokes.

T. G. Mackenzie (5 F.N., four-cylinder, 1909) 76⅗s.
C. P. Finn (2¼ Royal Enfield, 1910) ... ... 55s.
E. Lee (3½ Scott two-stroke, 1909) ... ... 45⅖s.

In the final, H. Bentley-made even time (50⅕s.), whereas the other finalists (Turner and Lee) lost slightly on their previous time. Bentley therefore became the first winner of the Robson Trophy. E. Lee made the fastest time of the day on his Scott.

The newly-formed motor section of the Bath Cycling Club, assembled outside the Blathwayt Arms, on the Lansdown heights.

A selection of questions of general interest received from readers and our replies thereto. All queries should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, E.C., and whether intended for publication or not, must be accompanied by a stamped addressed envelope for reply.

Fitting a Free Engine Clutch.

Please say—(1.) Would the fitting of a Mabon clutch to my Triumph injure the engine in any way? (2.) Is the Mabon clutch entirely satisfactory? (3.) Would the machine run freer or quicker down a hill in free engine position than at present with exhaust lifter raised?—G.J.I.

(1.) No, the fitting of the clutch would not injure the engine in any way. (2.) The clutch is satisfactory. (3.) Naturally the machine would run more easily with the clutch out than with the exhaust lifter raised, as there would be no friction in the engine to overcome with the clutch disengaged.

Damage to a Gate.

In going on bueiness to our local workhouse the other day on my Rexette I had the misfortune to get upset through the projection in the centre of the gateway which holds the gates together when closed, catching in one of the front wheels of my machine and wrenching the steering wheel out of my hands. The result was that the machine charged the gate and damaged it. Can the guardians make me pay for the damage?—UNFORTUNATE.

Our legal adviser's reply with regard to your query is as follows: "This query cannot be definitely answered on the facts given in the letter. May I presume that it is customary for the roadway from the main road to the workhouse to be used by horses and carts and vehicles generally? Has 'Unfortunate' been in the habit of using this road with his Rexette? At what rate was he travelling? Ought he not with reasonable care to have been able to avoid the projection? Did he previously know that the projection was there? Do I understand that the projection was just the same as usual, or when the gates were opened ought it to have been put down in some way to allow carriages to go through? If the latter was the case, and 'Unfortunate' was riding with reasonable care, and had a right to use the road, it would be difficult for the authorities to recover damages. It would certainly be best for 'Unfortunate' to explain the full facts to a local solicitor before agreeing to pay any damage."

Dirty Engines and Over-lubrication.

My machine, a 3½ h.p. 1909 Triumph, covers the chain wheel and crank case with oil which escapes *vid* tappet holes, etc. There is apparently no valve in the crank case release. Now in previous machines I have always had a ball valve, which I take it produced a slight vacuum in the crank case, and so prevented oil escaping. Would such a valve fitted to my machine be harmful? That is to say, would the vacuum remove the oil from the guides and crankshaft too effectively so as to under-luhricate them? I should esteem it a favour if you will help me in this, as, of course, an oily crank case does not look nice. —C.V.

Your machine has a hollow crankshaft, which has the same effect as a ball release valve, so there would be little improvement effected by fitting a ball valve. Although identical engines vary considerably in cleanliness, we are inclined to think that, provided the cylinder joint is perfect and the cylinder is tightly bolted down, you are using lubricating oil which is of too thin consistency, and it seems clear that you are injecting far too much oil into the crank case. Try thicker oil and cut down the quantity, and observe the result.

Repair of a Punctured Float.

Recently I had a case of carburetter float leakage, which revealed itself by excessive flooding. Fortunately this occurred at home, and was quickly remedied by putting in a spare float; but, supposing this mishap had taken place on the road remote from a repair shop or station, what could be done in order to get home? I never had a leaky float before, and naturally it suggested the thought what would effect a temporary repair or substitution if far distant from one's ordinary resources? If float chamber was firmly packed with a sponge or cotton wool, converting carburetter into a surface pattern, would such arrangement work? I have heard of a cork float being used, but think adjustment of same might be difficult.—R.G.L.

Curiously enough, we experienced the same trouble not long since. Thanks to the help of a local blacksmith, we were able to repair the float by soldering up the leakage. This is rather an interesting repair. To get the petrol out of the float, the float was immersed in boiling water, with the result that the petrol vaporised and the vapour issued through the leakage and through a small hole made in the top with a needle. The leak and the needle hole were then soldered up by lightly touching the places with a soldering iron. Of course, it is quite possible nowadays to carry a small soldering outfit quite up to this sort of work on a motor bicycle. In the event of no repair place being at hand, the machine can be coaxed along by careful manipulation of the petrol tap, preventing the float chamber from overflowing. Filling the float chamber with sponge or wool will not convert the carburetter into a surface pattern.

Cost of Running Lightweights and Heavyweights.

I am thinking of taking up motor cycling, but before buying a machine I should like to know the approximate upkeep per annum. What would be the cost of running (1) a Triumph, (2) a Motosacoche or lightweight F.N.? I should need to do about 8,000 miles per annum. (3.) What is the mileage per gallon of petrol for each of the above machines? (4.) What is a reasonable mileage to expect from the front and back tyres respectively. (5.) Given a reasonable amount of care for how long should one of the above machines remain serviceable? I should require the machine mainly for going to and from business and for week-end trips.—R.L.

(1 and 2.) The difference in cost of running would be mostly in connection with petrol and tyres. The tyres fitted to the Motosacoche and the lightweight F.N. are of smaller size than the tyres on a 3½ h.p. Triumph, and consequently renewals cost less. (3.) The mileage per gallon for a 3½ h.p. single-cylinder machine averages about eighty or ninety miles, on a 1¾ h.p. about 120 miles, and on the 2¼ h.p. lightweight about 110 miles. (4.) An extra strong front tyre of suitable size with care should last 10,000 miles and a back tyre from 3,000 to 4,000 according to circumstances. (5.) With renewals there is no reason why any of the machines you mention

should not be serviceable for a practically indefinite period, but after a few years machines are usually disposed of through becoming obsolete in pattern, not so much because they are actually worn out or unserviceable.

Increasing Engine Speed.

My engine is a 2¾ h.p. De Dion, just rebored, etc., and practically as new. I have altered carburetter several times (larger and smaller jets), taking care to employ a fairly strong inlet spring, but fail to get the power or speed I should expect. Thinking of increasing power, I added ⅛in. on the exhaust cam, making lift of valve fully ¼in., and timed same to open (rapidly) when piston is within ⅝in. from bottom of firing stroke, and close (rapidly) at dead top of stroke. (Stroke of engine approximately 3in.) What I should like to know is: (1.) What engine speed, normally, should I expect? (2.) Am I right by having ¼in. lift to exhaust valve or is same too much? (3.) Does valve open too early in my case; if so, when should it open? (4.) Which gives the most power — rapid opening and closing, easy opening and closing, or easy opening (at the correct time, of course), and rapid closing? (5.) Would you advise me to increase the compression ratio a little?—G.W.

(1.) Engine speed depends upon the gear and other factors, but when not worked too hard or driving too heavy a load 2,000 r.p.m. should be easily attained. (2.) The usual amount of lift is between $\frac{3}{16}$in. and ¼in. (3.) The valve should commence to open when piston is within one-seventh of the end of the working stroke. The stroke is 76 mm., so that the valve should commence to rise when piston is within 11 mm. of the bottom of the firing stroke. 11 mm. is approximately $\frac{7}{16}$in., so apparently the valve opens too early. (4.) There seems to be no hard and fast rule on the subject, but for power consideration only the valve should open and close quickly. (5.) No, it will only cause the engine to overheat, and the flywheels being made to suit the compression raising the latter would necessitate heavier wheels for smooth running.

Fitting a Magneto Switch.

Please tell me how to connect a switch to the magneto of my machine. Is any special wiring needed? In running down a long hill with the magneto cut out, would the magneto be likely to heat up or receive damage to its armature or internal parts?—H.H.P.

Over the contact-breaker of your magneto you will find a steel screw. Connect a wire to this and the other end to the handle-bar switch, and as soon as you earth the current through the switch the magneto will be put out of action. The magneto will receive no damage if a switch is fitted as we have suggested.

Wear of Bearings. Overhead and Pocket Valves.

The big-ends of my 7-8 h.p. twin have worn so much in about 1,500 miles that I have had to have them rebushed: I have always given plenty of oil—in fact, over-lubricated. (1.) Could the wear be caused by an excessive use of the magneto switch, as I am continually using it, especially in traffic? There is always a considerable kick every time I switch off and on. (2.) What are the advantages and disadvantages of overhead valves; and why are they fitted to racing machines and not to touring ones?—F.C.M.

(1.) It is quite possible that excessive use of the switch may have accentuated the trouble. It is far better to slow down with the aid of the exhaust valve lifter, as the power is too suddenly applied with a switch, unless the spark lever be retarded and the throttle almost closed. (2.) The advantages of overhead valves are that there is an absence of pockets, and, in consequence, increased efficiency. The disadvantage is that there is a possibility of the valve head falling into the cylinder and being jammed through the piston in case of breakage.

Route. Carriage Tax.

(1.) What is the best route from Holyhead to Southampton? (2.) Are there many police traps on this route? (3.) Will it be necessary for me to take out the 15s. carriage tax for my motor bicycle which is registered in Ireland, my driving licence also having been taken out in Ireland?—W.E.H.

(1.) Your best route would be as follows: Holyhead, whence the road is marked by the R.A.C. straight away to Shrewsbury, and is, in consequence, easily found, then through Ironbridge, Bridgnorth, Kidderminster, Worcester, Evesham, Moreton-in-the-Marsh, Chipping Norton, Woodstock, Oxford, Abingdon, East Ilsley, Newbury, Whitchurch, Winchester, to Southampton. (2.) We do not know definitely of any police traps on this route. (3.) Yes, it will be necessary for you to take out a local taxation licence, and the law states that it must be taken out "within twenty-one days of becoming liable."

READER'S REPLY.

A Double Purpose Accumulator.

Seeing "C.G.'s" query of June 16th for using an accumulator for a double purpose, I should like to give my reply. If the cell is a 12, or more, ampère-hour one he could use it for both purposes, provided the coil he uses takes a small current, say ¾ ampère, and also the lamp about the same. Personally I can recommend a 3 or 4 c.p. Osram bulb, as this gives an excellent light, and takes very little current. Using both together will not cause misfiring or intermittent lighting, provided he connects up properly—in parallel, and not in series. I beg to remain one who has "DONE IT."

The team of Tourist Trophy Triumph riders who created a record in the Isle of Man by finishing complete. Left to right: H. Lister Cooper, W. F. Newsome, W. G. McMinnies, J. W. Adamson, Howard Smith, W. Creyton. J. Marshall, and C. E. Murphy.

THE RUDGE-WHITWORTH MOTOR BICYCLE.

IN a recent issue we published a brief announcement regarding the motor bicycle which Rudge-Whitworth, Ltd., is preparing for 1911. Apparently there is no intention of producing anything in the nature of a radical departure from standard practice, but the company has already made one or two innovations which are the results of experience gained by a long motor cycling career on the part of members of the staff. Readers may, therefore, expect a thoroughly practical machine, free from fads, yet embodying good engineering practice.

At present it has been decided to make a single-cylinder engine with dimensions 85 × 88 mm. bore and stroke, with internal flywheels, detachable combustion head, and mechanically operated inlet valve operated by an overhead tappet and rocking lever. The detachable head is secured to the cylinder by four long bolts, let into the crank case in a similar manner to the old De Dion and M.C.C. tricycle engine. The inlet valve seating is held down to the combustion head by a dome provided with a bayonet joint. To remove the valve and inlet pipe it is only necessary to unscrew the set pin through which the inlet valve tappet works, and the valve seating with the valve complete may be taken out bodily. One pair of timing wheels only are used, the cams for the exhaust and inlet valves being on one spindle. The magneto machine is fitted in front of the crank case and driven by chain, but is not too high up to prevent effective cooling of the lower portion of the cylinder.

The carburetter, a B. and B. spray of the usual handle-bar controlled type, is situated behind the cylinder. To provide a very low seat the top tube runs parallel for two-thirds of its length, and is then curved down towards the back stays and seat tube lug. The tank, of course, is shaped to fit the space. The distance from the ground to the top of saddle is only 30¾in. The free engine clutch is on the engine-shaft, and the machine is so designed that either belt or chain drive can be finally adopted. The pedalling chain for starting, instead of being connected to a ratchet clutch on rear hub on the right-hand side, is directly coupled to the engine-shaft. The clutch only comes into operation when required, and is not continually over-running when the pedals and cranks are stationary. Large diameter tubes are used throughout the frame, and the petrol and lubricating oil tanks have large filler caps, the lubricating oil tank being a separate reservoir with hand controlled spring plunger pump.

The first of the Rudge-Whitworth motor bicycles is expected to be on the road within the next few weeks, when we hope to have an opportunity of trying it and giving our readers an opinion with regard to its capabilities on the road. Judging by the careful way in which the design is being elaborated, we fully believe that the firm will have an excellent model, and one which it will repay our readers to examine closely.

RIDING HINTS.

I HAVE heard a good many complaints recently from motor cyclists that, after injecting petrol or paraffin into the cylinder, they have great difficulty in starting up, either by means of the handle on the back wheel axle or by the pedals, owing to stiffness of the engine when cold. They probably find that even a large amount of the solvent does not free the piston sufficiently.

The simplest and most effective method is to inject a small quantity of paraffin into the cylinder at least half an hour before starting up. The engine will be found to be quite free if this be done. The explanation is obviously that the piston and piston rings are a very close fit, and as a result the solvent is not able to dissolve the congealed oil immediately, but gradually makes its way past the top ring, and finally reaches the bottom ring.

Riders should ascertain whether the engine is quite free when hot. If it is, there is nothing wrong, and the above method of starting will overcome the difficulty.

Many 1909 and earlier models have no petrol injecting pipe. This is easily remedied by fitting a pipe and universally-jointed union in place of the tank drain tap.

I note that "Ixion" recommended recently that magneto cut-outs should always be fitted. Surely he must know that opening the extra air valve wide cuts out the engine and uses only a small quantity of fuel, the mixture being very weak and composed largely of air. And even if we assume that for some reason this method of cutting-out the engine should fail, one can always in emergency shut the throttle. So that the exhaust valve lifter, extra air valve, and throttle must all three fail before a magneto cut-out would be required. But if a few ultra-cautious riders do require a magneto cut-out, they can so fit one that the operation of fully retarding the contact breaker brings the insulated terminal connected to the bell-crank into metallic contact with an earthed portion of the magneto. I have effected this by means of a small piece of brass attached to the insulated terminal connected to the bell-crank. When the lever is fully retarded, this piece of brass makes contact with the brass oil-cup cover, and short-circuits or earths the current and prevents the occurrence of the spark at the plug. No extra knobs or wires are required, and nothing could be simpler.

Owners of Humbers and other two-speeded models fitted with the Roc type of clutch and gear may be glad to hear of the following tip: In order to push off on the low gear, fit a piece of spring steel to the inside of the left footboard in such a manner that the back end is attached rigidly and the front end is free to move in a lateral direction, and capable of being brought behind the pin projecting from the small lever which actuates the low gear clutch rod. To use this device, press low gear pedal home, and push spring behind projecting pin; now release low gear clutch pedal, and the result is low gear is held in engagement. Push off, step on at a low speed, press low gear clutch pedal when seated, and spring catch flies out of action. Releasing low gear clutch pedal gives free engine. This is often a convenient way of starting when one does not desire to push off with high gear in or to get out the starting handle. C.W.

AN EXPERIENCE OF THE COWEY SPEEDOMETER.

THE Cowey speedometer has attained a well-deserved amount of popularity amongst motor cyclists owing to the absolute steadiness of the indicating hand and also owing to its accuracy. In its working it differs considerably from other speedometers. Referring to fig. 1, the balance wheel A is driven by means of a propelling arm B mounted on the eccentric E, which is rotated direct by the flexible shaft. The spring C has a small chain D attached to it, one end of which is fastened to the spindle upon which the balance wheel is mounted. The propelling device, the face of which is provided with a number of teeth, which mesh with the teeth cut on the edge of the balance wheel, gives a series of intermittent impulses to the wheel, which tend to draw it continuously against the direction in which the spring is pulling, namely, the direction of zero on the dial. The faster the machine travels the more numerous will be the impulses given to the balance wheel by the propelling arm, so that the spring, having more work to do in overcoming the effect of these impulses, will be deflected and allow the balance wheel to have more or less movement. The balance wheel actuates the indicating hand and moves it into a position which shows the speed at which the machine is travelling. In actual practice the hand moves up slowly, and when it has reached the speed at which the machine is travelling it remains absolutely steady at that point. On the speed being reduced the handle drops back slowly until it indicates the speed to which the machine has been slowed down. The stud F on the eccentric E serves to actuate the odometer, which is situated at the side of the casing.

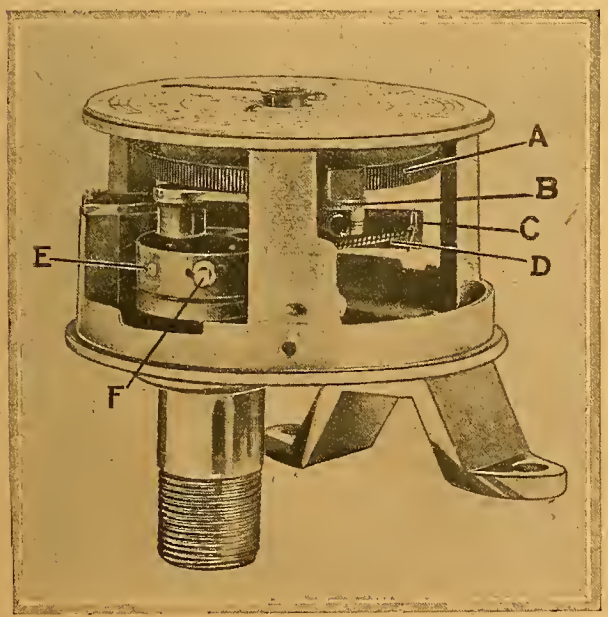


FIG. 1.—A. Balance wheel. B. Propelling arm. C. Spring. D. Chain. E. Eccentric. F. Stud.

Fig. 2 shows the driving mechanism and flexible chain E. This chain runs in the flexible shaft C. The method of attaching the driving wheel to the spokes is ingenious. It is backed by a split ring, and is clamped on by screws and nuts, the latter being specially shaped.

We have had one of these indicators in use nearly all this season, and have not had a moment's trouble with it. It indicates speed quite accurately as far as we have been able to ascertain by rough timing between milestones and the distances recorded on the odometer check, with the mile posts and other means of reckoning distance travelled. We can recommend the use of the Cowey speedometer to any reader who contemplates fitting one of these devices. The makers are Cowey Eng. Co., 1, Albermarle St., W.

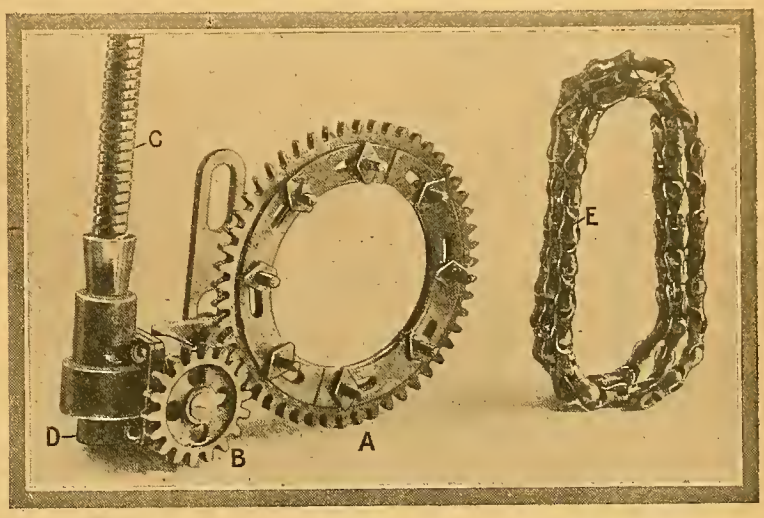


FIG. 2.—A. Driving ring. B. Driven pinion. C. Covering to flexible shaft. D. Transmission gear box. E. Flexible chain shaft.

T. Trinaman (7 h.p. V.S.), who made fastest time of the day at the South Devon M.C.C. hill climb.

The Battle of the Cylinders.

In the 60 Lap Race at Brooklands on the 22nd S. A. M. Witham used Wakefield motor oil, "Castrol" brand, when he broke the fifty miles record.

Catering for Motor Cyclists.

Messrs. John Piggott, Ltd., Cheapside, E.C., one of the oldest firms of outfitters in the City, are now devoting themselves seriously to catering for the requirements of motor cyclists. An excellent suit which should appeal to our readers at this time of the year, specially designed to protect the rider from dust, consists of a double-breasted jacket and seatless gaiter trousers. The same firm have also an excellent accessory department, in which all the best-known tools, accessories, and tyres are stocked. Motor cyclists who are also campers will be interested in the J.P. sleeping tent, made from swallow-wing yacht canvas with ground sheet sewn in. It packs into an American cloth case provided with a strap.

SPARKLETS

The End-to-end Six Days' Trials.

Competitors in the A.C.U. End-to-end Trial will be interested to know that spare Continental tyres may be obtained at the following towns *en route*: Penzance, N. Holman and Son; Taunton, the Taunton Motor Co.; Warrington, J. Skelton, 55, Sankey Street; Moffat, the Sportsman's Emporium (A. D. McDonald); Pitlochry, J. Kennedy; Inverness, Macrae and Dick; Wick, A. Robertson and Son.

Mr. Alec S. Ross, of Bowden Wire, Ltd., will be at the Union Hotel, Penzance, on July 2nd and 3rd, when any assistance he can give competitors will be at their disposal.

A Telescopic Soldering Iron

A handy telescopic soldering iron has been brought out by the proprietors of the "Tinol" solder, Neville Williams and Co., 88, Southwark Street, S.E. This small tool is made to take into three parts—the iron, the handle, and an intermediate tube which permits the tool when extended to be nearly 12in. long. Closed it measures 5in. by 2in. over all, and will therefore easily go in the toolbag.

The Scottish Six Days' Trials.

In the recent Scottish Trials, which are certainly the most severe test that has ever been held for touring motor cycles, all the competitors but two employed Vacuum Mobiloil, and expressed their entire satisfaction with the lubrication of their engines.

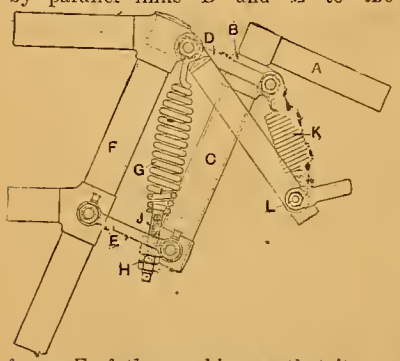
Mr. J. Talfourd Wood, who was a competitor in the Scottish Six Days' Trials, has written to the Kempshall Tyre Co., Ltd., to inform them that all his tyre troubles were due to burst air tubes which were not Kempshalls.

RECENT PATENTS.

By ERIC W. WALFORD F.C.I.P.A.

A Spring Seat-pillar.

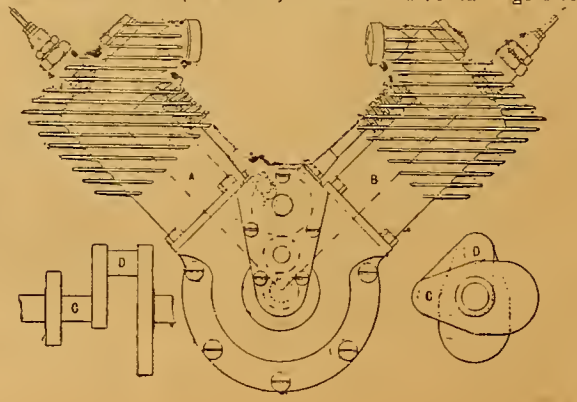
The ordinary seat-pillar A is held in a clamp B, which permits of adjustment in the tube C. This is connected by parallel links D and E to the



frame F of the machine so that it can rise and fall, the seat-pillar A always remaining at the same angle. Diagonally is arranged one or more tension springs G, which carry the weight, and are adjustable by adjusting the nuts H on the screwed stem J. A recoil spring K is attached to the clamp A, and to the machine frame at L.—C. T. B. Sangster, No. 16,386, 1909.

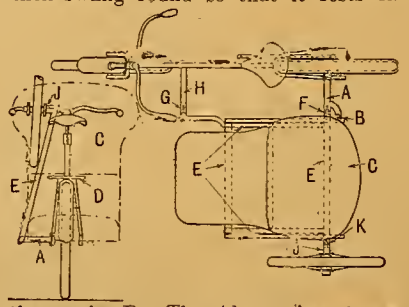
A Balanced Twin.

The cylinders A B are set at an angle of 90° to each other, as also are the crank pins C D. By this arrangement a more even turning moment is attained than when both piston rods are connected to the same crank pin.—G. H. Rotherham, No. 10,407, 1909.



A Collapsable Sidecar.

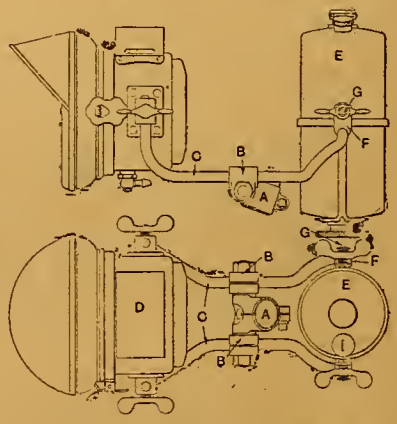
This sidecar is made collapsable in an ingenious manner, so that the whole machine can be passed through a narrow doorway. Projecting from the machine is a fixed arm A with an upstanding pillar B, to which is pivoted the seat C. To collapse the machine the seat is slipped up the pillar C, and then swung round so that it rests on



the carrier D. The side carriage frame E, which is of rectangular shape, is pivoted at F to the arm A, and at G to the arm H. The wheel axle J is pivoted at K to the frame. When the seat is swung out of the way as described, the whole side carriage frame can be turned about its pivots so that it is swung up into the position illustrated.—A. E. Abrahamson, No. 22,170, 1909.

A Lamp and Generator Bracket.

This bracket is attached to the steering head or elsewhere by a clip A, to which is pivotally attached a clamp B securing two rods C. These rods are formed to carry at the front end the head lamp D, and at the rear the generator E. The rods terminate at the rear in flattened portions F, which

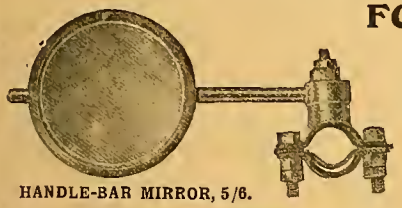


are slotted to receive trunnions G formed on the side of the generator. It will be noticed that the rods C are adjustable through the clamp B, and that the whole bracket can be set at an angle.—H. Lucas and W. H. Edwards, No. 16,633, 1909.

1910 Motor Cycles on the Road.

Two Clyde motor cycles in the Leicester M.C.C. team competing for *The Motor Cycle* Cup made non-stop runs and gained 100 marks each. They were ridden by T. Needham and A. R. Barker.

DUNHILL'S MOTORITIES
FOR MOTOR CYCLISTS.



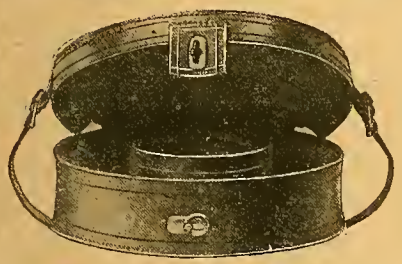
HANDLE-BAR MIRROR, 5/6.

Write to Dept. "M" for our Motor Cycle Catalogue, free on request.

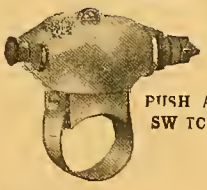
"UKANTES" Motor Cycle Stand.
With locking device, 9/6 per pair.
Without " 7/6 "

VALISE, 9/-

All-rubber Goggles, with extra glasses, 1/9.



COMBINED BELT and TUBE CASE, 9/6.
SMALLER PATTERN at 8/6.



PUSH ACTION SWITCH, 3/-

"DUNHILL" BELT PUNCH, 1/9

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LODGE PLUG, 4/-

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VALVE LIFTER, 2/6

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LONDON-EDINBURGH
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MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—1d. per word, minimum 1s. Name and address must be counted. In the case of Trade Advertisements a series of thirteen insertions is charged as twelve.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor Street, E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should state distinctly under what heading and in what issue the announcement appeared.

CLASSIFICATION BY LOCALITY.

For the convenience of purchasers of second-hand motor cycles, the advertisements are classified into districts, as many readers like to know what machines are for sale in their immediate neighbourhood before going further afield.

Plan showing division of England into Sections.

SECTION I.
Northumberland, Cumberland, Durham, and Westmoreland.

SECTION II.
York and Lancashire.

SECTION III.
Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

SECTION IV.
Nottingham, Lincoln, Leicester, Rutland, Northampton, Warwick.

SECTION V.
Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

SECTION VI.
Worcester, Hereford, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

SECTION VII.
Gloucester, Oxford, Buckingham, Berks, Wilts and Hants, Channel Islands.

SECTION VIII.
Hertford, Essex, Middlesex, Surrey, Kent, and Sussex

SECTION IX.
Somerset, Devon, Dorset, and Cornwall.

SECTION X.
Scotland.

SECTION XI.
Ireland and Isle of Man.

WAUCHOPE'S

Guaranteed Bargains.

5-6 h.p. J.A.P., twin, M.O.V., overhead tappets, Chater-Lea fittings, ridden at Brooklands 21st inst., suitable for road or track, high-class machine, as new in every detail, magneto ignition, Cowey speedometer, drip feed and force pump lubricator, Brooks' B20r saddle, h.b. control, racing or roadster handle-bars, recently the property of N. E. Drury; price **£39 10s.** Guaranteed.

5 h.p. 1909 REX DE LUXE, two-speed gear, magneto ignition, spring front forks, fitted with a 1910 Mills and Fulford spring wheel sidecar. This combination is ready for the road, and is in condition as new. The whole turnout includes machine complete with all accessories and sidecar; price **£45.** Guaranteed.

No. 2,573.—3½ h.p. 1908 TRIUMPH, fitted with the Nala two-speed gear in the back hub, machine throughout, also the gear, in perfect order; price **£35.** Guaranteed.

No. 1,741.—3½ h.p. QUADRANT, in new condition, magneto ignition, nice new appearance, no sign of wear in the moving parts, genuine bargain; price **£22 10s.** Guaranteed.

No. 2574.—2¾ h.p. 1910 MOTO-REVE, not ridden 200 miles; cost three weeks ago 40 Guineas; lowest possible cash price **£33.** Guaranteed.

3½ h.p. ZENITH GRADUA, 1910 model, in new condition, J.A.P. engine, M.O.V.; price **£45.** Guaranteed.

No. 2236.—4½ h.p. Twin-cylinder MINERVA, good condition, suitable for passenger work; **16 Guineas.**

No. 2127.—4 h.p. ANTOINE, vertical engine, very powerful; cheap at **£11.** Guaranteed.

No. 2135.—1¾ h.p. N.S.U., magneto ignition, in excellent condition and running order; price **16 Guineas.**

No. 2208.—2¼ h.p. BRADBURY, in very nice condition, as new; price **£12 10s.** Guaranteed.

No. 1729.—3 h.p. TRIUMPH, good order; price **£12 10s.** Guaranteed.

No. 2558.—3 h.p. RALEIGH, two-speed gear, complete with sidecar; **£18 10s.** Guaranteed.

No. 2384.—4½ h.p. Twin-cylinder MINERVA, complete with sidecar; **£27.**

No. 918.—3½ h.p. EXCELSIOR, with sidecar; **£16.** Guaranteed.

No. 2580.—5-6 h.p. MIDGET Bicar, Peugeot engine; **£27 10s.** Guaranteed.

No. 2578.—3½ h.p. T.T. VINDEC, nice condition; **£27.** Guaranteed.

No. 2565.—3½ h.p. 1909 TRIUMPH, Cowey speedometer, all tools and accessories; **£38 10s.** Guaranteed.

No. 2561.—2 h.p. 1909 MOTO-REVE, sound, light machine; condition like new; cost 36 guineas; price **£27 10s.** Guaranteed.

No. 2571.—5 h.p. 1907 REX DE LUXE and Sidecar, ready for the road; **£27** the whole combination. Guaranteed.

No. 2582.—5 h.p. PEUGEOT, magneto ignition, twin engine in Chater-Lea No. 6 frame, nice condition; **£27.** Guaranteed.

No. 2569.—3½ h.p. TRIUMPH, magneto ignition, condition good; price **£16 10s.** Guaranteed.

No. 2577.—3½ h.p. Two-speed 1910 HUMBER, as new; **£38.** Guaranteed.

No. 2559.—2 h.p. 1909 MOTO-REVE, in first-class condition; price **£27 10s.** Guaranteed.

No. 2522.—3½ h.p. N.S.U., nice machine, in good running order; price **£14.** Guaranteed.

No. 1902.—3½ h.p. 1910 Two-stroke REX, new, standard tourist model, fitted with two-stroke engine, new; **£48.** Guaranteed by makers.

No. 2576.—1¾ h.p. MOTOSACOCHE, magneto ignition, in new condition, 1909 model, all ready for touring; **£23 10s.** Guaranteed.

No. 2575.—3½ h.p. 1907 TRIUMPH, good condition; **£26 10s.** Guaranteed.

No. 2582.—3½ h.p. 1908 SWIFT, good condition; **£28.** Guaranteed by the owners.

New 1910 machines in stock ready for immediate delivery: 3½ h.p. PREMIER, 3½ h.p. L.M.C., 3½ h.p. EXCELSIOR (free-engine clutch), 5 h.p. REX DE LUXE, 3½ h.p. Tourist REX, 3½ h.p. Speed King REX, 2 h.p. MOTO-REVE, 3½ h.p. Two-stroke REX, and 3½ h.p. QUADRANT.

Recommended by all the leading cycle manufacturers for exchange business.

WAUCHOPE'S,

9, SHOE LANE,

Fleet Street, LONDON, E.C.

(JUST OFF LUDGATE CIRCUS).

'Phone: 5777 Holborn. Telegrams: "Opificer, London."

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed, "No. 000, c/o 'The Motor Cycle,' Coventry"; or if "London" is added to the address, then to the number given, c/o "The Motor Cycle," 20 Tudor Street, E.C.

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration. The time allowed for a decision after receipt of the goods is three days, and if no sale is effected, each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe and Sons Limited.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR BICYCLES FOR SALE.

SECTION I.

Northumberland, Cumberland, Durham, and Westmoreland.

1910 Triumphs ready for delivery; £48 18s., or with P. and M. two-speed £56.—Walker's.

1910 Phelon and Moores for early delivery.—Walker's Cycle Works, Ferryhill, Durham.

3½h.p. Twin Werner, light and low, splendid order; £13 cash.—Hutchinson, jeweller, Kirkby Stephen.

5-6h.p. Twin Rex, h.b. control, Mabon clutch, perfect order; £23.—Appleby, Salisbury Terrace, Stockton-on-Tees.

2¼h.p. New Hudson, Kelecom, B. and B., Whittle, just being overhauled; £9, offers.—38, Hood St., Sunderland.

HUMBER M.C., with Phœnix forecar, new condition; any trial; £17, or cycle £12 10s., forecar £5.—Forster, Neville's Cross, Durham.

2¾h.p. Douglas, late 1908, in absolutely perfect condition, equal to new, magneto, spring forks, Palmer tyres, tools, spares.—Yewdale, Durham Rd., Stockton-on-Tees.

FOR 1910 Triumphs, Humbers, N.S.U.'s, and Enfield lightweights, we can give you deliveries from stock. Why wait? Send for lists.—Write, wire, or 'phone your wants to Turvey and Co., The Motor House, Sunderland.

SECTION II

York and Lancashire.

DOUGLAS, King of Lightweights.—Gourlay, Fallowfield.

4-CYL. F.N., 5-6h.p., in perfect condition; £27.—Gryspeert, Loftus.

OFFERS.—1910 Triumph, accessories, new last month.—37, Malm St., Hull.

TRIUMPH, 1908, in splendid condition; £28.—J. P. Roberts, Bilton Dene, Harrogate.

1906 Rex, 3½h.p., m.o.v., girder forks, running order; £9.—Foster, Broom Villas, Rotherham.

2¼h.p. Minerva, splendid running order, new tyre; £7 offers.—Bintley, Thomas St., Huddersfield.

1910 3½h.p. Single-cyl. Premier, with auxiliary exhaust ports, not run 50 miles; £45.

1910 3½h.p. Two-speed Humber, Cowey speedometer and Lucas lamp and generator, £50.

1907 3½h.p. Triumph, Mabon clutch and Cowey speedometer; £30.

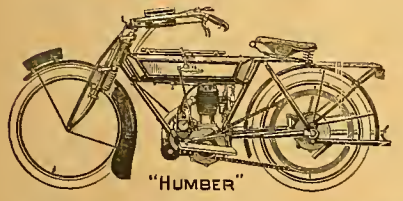
7h.p. Onway, Peugeot engine, Druids; £20.—Myerscough, Liverpool Rd., Great Crosby.

1909 3½h.p. Minerva, magneto, free engine, as new; sell, or consider lightweight and cash.—33, Antonio St., Bootle.

ARIEL, 2½h.p., X'all spring forks, good running condition; sacrifice £6 15s.—Rowson, Clarence St., Leigh.

MOTOSACOCHE, 1909, magneto, tyres new, very good condition; 18 guineas, or offer.—Rowe, Lyddon Hall, Leeds.

1910 HUMBERS AND SIDECARS.



We specialise in two-speed HUMBERS and SIDECARS, and can give good deliveries, also make best allowance for your present machine in exchange. No exertion is necessary for starting, simply one turn of the handle. Let us quote you.

SIDECAR MACHINES.

5½ h.p. Twin BROWN, with sidecar	£28 10
5 h.p. REX DE LUXE, with sidecar	£26 10
3½ h.p. BAT, two speeds, with sidecar	£25 10
5½ h.p. N.S.U., two speeds, with sidecar	£25 0

TRICARS.

5 h.p. HUMBER, open frame, two speeds	£30 0
5 h.p. REX, twin engine, air-cooled	£17 10
4 h.p. CONTALL, two speeds, water-cooled	£20 10
6 h.p. SINGER, three speeds and reverse	£35 0
5 h.p. SAROLEA, twin air-cooled, chain drive, two speeds, coach-built chair	£18 10

SOLO MACHINES.

3½ h.p. ARNO, magneto, brand new	£28 10
3½ h.p. REX, 1909, only run 100 miles	£28 10
5½ h.p. N.S.U., two speeds	£20 0
3-6 h.p. REX Lightweight, magneto	£16 10
5 h.p. TWIN V.S., magneto	£22 10
5 h.p. REX Twin, 1908 model	£20 10
5½ h.p. REX DE LUXE, Roc clutch	£20 10
3½ h.p. MINERVA, magneto	£15 10
5 h.p. Twin REX Speed King, 1908 model	£20 10
3½ h.p. HUMBER, 1910, two speeds, nearly new	£44 0
3½ h.p. N.S.U., magneto, very low built	£17 10
3½ h.p. BAT, magneto, two-speed gear	£21 10
2 h.p. MOTO-REVE, 1909, nearly new	£24 10
2 h.p. MINERVA, spray	£3 15
3½ h.p. TRIUMPH, splendid order	£32 10
2½ h.p. CLEMENT-GARRARD, h.b. control	£7 10
3½ h.p. M.M.C., Chater No. 6 frame	£10 10
3½ h.p. OLYMPIC, vertical engine	£7 10
5 h.p. Twin REX, magneto	£17 10
3½ h.p. HUMBER, spray, very powerful	£7 10
4 h.p. Twin PEUGEOT, magneto	£22 10
3½ h.p. ARNO, new 1910 model	£32 10
3¾ h.p. N.S.U., brand new, magneto	£32 0

Several other Bargains.
£3 allowed for push cycle. Exchanges entertained.

ENGINES.

5 h.p. ANTOINE, new, water-cooled, M.O.V.	£8 10
4 h.p. STANDARD, new, water-cooled, suit boat	£7 15
3½ h.p. M.M.C., air-cooled, M.O.V.	£4 6
2½ h.p. DE DION, air-cooled	£2 5
5 h.p. Twin REX, carburetters, silencers	£8 15

SIDE AND FORECARS.

MILLS-FULFORD, Castor Wheel	£8 10
MONTGOMERY, flexible joints	£3 10
Forecar Attachment, side stays	£3 10
Pair Forecar Wheels, with axle	£1 0
New Sidecar Basket, upholstered and cushion	£1 3

GIVE NEW BELT FOR X'ALL SPRING FORKS.

WANTED.

REX LIGHTWEIGHT, 3½ h.p. REX, 3½ h.p. QUADRANT, 1907 or 1908 TRIUMPH, MOTO-REVE, TWIN N.S.U., REX DE LUXE. Very reasonable cash price given. We require them for shipment abroad. It will pay you to write us.

BOOTH'S MOTORIES,
CHARLES STREET, off Square Road,
Phone 1062. HALIFAX. 2 minutes walk from Station.

MOTOR BICYCLES FOR SALE.

3½ h.p. 1909 Premier, magneto, spring forks, handle-bar control, splendid condition; £30, or nearest offer.—Below.

3-3½h.p. Humber, free engine and clutch, trembler coil, tyres nearly new, long handle-bars, Swan seat-pillar; £10.—Below.

2 h.p. De Dion; £6.—County Garage, Preston.

1910 5h.p. Indian, brand new, health reasons; best offer over £48 secures.—Box 5,006, *The Motor Cycle* Offices, Coventry.

F.N., 4-cyl., 3½h.p., magneto, tyres excellent, carrier, stand, tools; £14 cash.—Rev. Walsh, St. Anne's, Deepcar, near Sheffield.

3 h.p. Fafnir, Chater-Lea, S.G. belt, Longuemare, good condition, running order; bargain, £10.—A. Oates, Bracken Moor, Stocksbridge, near Sheffield.

5 h.p. Red Indian, new ten days ago; too fast for owner; £50, no offers; can be seen by appointment.—Address, Samter, 7, South Parade, Manchester.

MOTO-REVE, twin, magneto, Palmer tyres back, 26 by 2, front 26 by 1½, little worse than new; £22 10s.—Seal and Ball, 24, Nevill St., Southport.

1910 Humber, two-speed, Dunlop studded tyre; catalogue £51, seller cannot take delivery, take £48.—Box No. 5,076, *The Motor Cycle* Offices, Coventry.

N.S.U., 3½h.p., 1909, Whittle belt, new condition, guaranteed perfect, not done 1,000 miles; best offer.—42, Hermitage Rd., Crumpsall, Manchester.

BRADFORD for the Invincible Bradburys.—Special purchase; Bosch plugs, post free 2s. 9d.—Merrick's Stores, 174, Listerhills Rd., Bradford. 'Phone, 2439.

ON Sale, 1910 Douglas, King of Lightweights, all the latest improvements, brand new, never ridden; the first £38 buys same.—Bentley, 134, St. George's Rd., Bolton.

ROYAL Enfield Lightweight Motor Cycle, twin cyls., magneto, mechanical valves; 38 guineas; from stock.—District agents, Newton and Co., 50, Blackfriars St., Manchester.

TWIN Rex, 5h.p., with forecar, spare front wheel convertible to single; £19, complete; would sell separately, in splendid condition.—Shackleton, jeweller, Sowerby Bridge, Yorks.

2¾h.p. Phelon and Moore, two-gear, chain drive, low frame, accumulators, in very best working condition; £24.—Particulars from G., Clevedon House, Grassington, Skipton.

N.S.U. 5½h.p. Twin, in splendid condition, magneto, spring forks, low frame, good tyres, Shamrock belt, and all accessories, two spare tubes and outer cover; £25.—Meadows, Hall Lane, Hindley.

6 h.p. Antoine Twin, A.C. engine, run 100 miles, £6; Palmer cover, cord, 26 by 2, 30s.; Edison Home phonograph, with large horn, cost £7, sell £4; all in new condition.—10, Hibbert St., Widnes.

5-6h.p. Midget Bicar (Peugeot engine), in perfect condition, very fast on hills; reason for selling, too powerful; £22 10s., or exchange for 1909 Triumph and cash.—28-30, Old St., Ashton-under-Lyne.

N.S.U., 1908, 3½h.p., 1910 B. and B., Whittle, Palmer cord back, Continental front, magneto, saddle 30in., hinged footboards, many improvements, spares; £25.—Lister, Baskerville, St. Ann's Rd., Rotherham.

REX, 1908, 3½h.p., magneto, spring forks, Triumph carburetter, Whittle belt, Advance pulley, new Continental and Dunlop carrier, spare valves, very speedy machine; sacrifice £21.—Lee, 10, Manning Rd., Southport.

SOUTHPORT.—In stock for cash, exchange, credit, the following and other tip-top machines at bargain prices: 1909 3½h.p. magneto Rex, £29; 1909½ 3½ h.p. Rex, new tyres, £32; 1909 3½h.p. Rex Tourist, two-stroke, £34; 1908 3½h.p. magneto Rex, £20; 1906 3½ h.p. Rex, £14; 1908 Rexette, £20; 1909 Moto-Reve, not run 100 miles, lamp, horn, etc., £26; the Garden City sidecar, new, £4 10s.; if you do not see in our advertisement exactly what you want, call or write, we shall probably have your requirements; we cannot advertise all our stock; excursions from all parts to Southport; sidecars for hire; official agents Rex, F.N., Motosacoche, 1910 models in stock.—143a, Lord St., Southport.

SECTION III.

Carnarvon, Denbigh, Flint, Cheshire, Derby, Stafford, Shropshire, Montgomery, and Merioneth.

3 h.p. Singer, excellent condition, spring forks, Palmer tyres; £15.—C. Willding Jones, Hampton, Malpas.

BARGAIN.—3½h.p. Minerva and trailer, perfect; photo, stamp; £10 cash.—R. Perrin, High St., Nantwich.

1909 Roc, two-speed, new non-skid back wheel, Bosch magneto; £32.—Bevan, Llanfairpwll, Anglesey.

2¾h.p. Lurquin Motor Cycle, vertical engine, Amac, nice condition; £6.—A. Challoner, Greenfield, Wrexham.

1910 Scott Motor Cycle, new Lucas lamp, speedometer, several spares; bargain.—Evan's Garage, Newport, Salop.

DOUGLAS, Model B., new October, many extras, good order, perfect running; £27.—Jackson, 8, Cable Rd., Hoylake.

"CORONET" SUCCESS

Mr. Youngman secured first prize with a Twin Rex and "CORONET" SIDECAR in the Halifax Reliability Trial Run, on June 12th, to Morecambe and back, a distant of 130 miles over some of the roughest roads imaginable. This Sidecar he has driven some thousands of miles without trouble.

£4 17s. 6d.

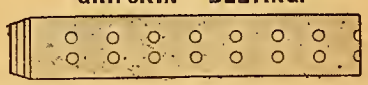
We maintain the "Coronet" is the BEST DESIGNED SIDECAR on the Market.

Free from Side-slip.—The "Coronet" Sidecar is attached in three places, the front down tube, bottom stay, and saddle bolt, and can be detached in three minutes. Every tube of attachment is telescopical and adjustable to suit any length wheelbase, any height or width. When attached the combination is as firm and rigid as a Tricar, and entirely free from side-slip, and can be driven safely without passenger if desired.

Springing.—In the majority of sidecars the front portion of chair is laid on tubes forming part of the framework. Consequently all road shocks are transmitted along these tubes to the feet of the passenger; not so with the "Coronet." The chair is luxuriously sprung clear of the frame, on double C springs, and riders declare this sidecar to be equal in comfort to an expensive motor car. This is one of the most important features of the "Coronet." Discount to the trade.

Delivery from stock to suit TRIUMPHS, REXES, P. & M.'s, N.S.U.'s.
Price £4 17s. 6d. Discount to trade.

"GRIPSKIN" BELTING.



Made from selected parts of hides, correct angle, perfect drive; the best leather belt on the market. Longer life than rubber.

⅜in., 10d.; ½in., 11d.; ⅞in., 1/1; 1in., 1/2.
Special terms to the trade.

TYRES. TYRES. TYRES.

SPECIAL CLEARANCE.

CLINCHERS, DUNLOPS, 26 × 2 and 2¼	17/6
DUNLOPS, wired 28 × 2 and 2¼	10/6
CLINCHERS, beaded, 28 × 2 and 2¼	15/6
CLIPPER REFLEX, 24 × 2 and 2¼	10/6

Large stock of Continentals, R.O.M., Palmers, Shamrock, and other makes. Liberal allowance for your old cover in part payment.

MAGNETOS. MAGNETOS. MAGNETOS.

We have a large stock of the best makes from 59/6. Your old coil and acc. taken in exchange.

CARBURETTERS.

BROWN AND BARLOW. AMAC.

Let us quote you for converting your machine to handle-bar control. We keep a large stock of carburetters.
OLD CARBURETTERS BOUGHT.

MISCELLANEOUS.

De Dion Car Frame, wheels, differential	£3 10s.
Nearly new Powell-Hanmer Sovereign Lamp	12/6
Mudguards and Stays ... 3in., 2/11, 4in.,	3/6
Silent Silencers for engines to 5 h.p.	3/3
Long Handle-bars, well plated	5/6 and 6/6
500 Fuller Midget Trembler Coils	17/6
200 Fuller Plain Coils (your old coil taken in exchange)	10/6
250 Mirror Lens Lamps, with generators	14/9
50 Pairs New Xl'all Spring Forks, latest	15/-
Longuemare, Minerva, F.N. carburetters ... each	5/5
Amac and B. & B. carburetters	7/6
Good Forecarriage, complete, with tyres	£2 19s.
New Amac Carburetter, handle-bar control	17/6
Second-hand pair XL'All or Matchless Spring Forks	9/6
Mahon free engine clutch	30/-
Low tension Magneto, suit car	27/6

BOOTH'S MOTORIES,
CHARLES STREET (off Square Road), HALIFAX.
Telephone 1062.

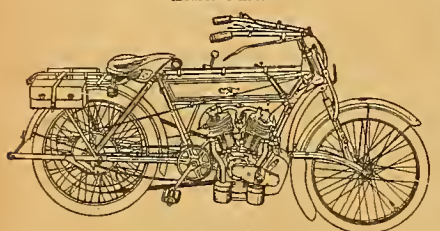
MAUDES' MOTOR MART

HALIFAX AND LONDON

Any machine on Easy Payments upon terms below.

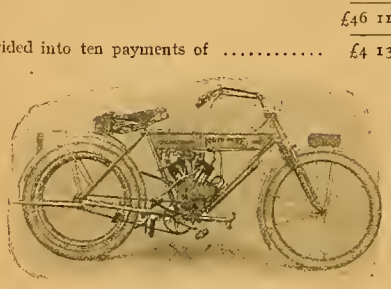
We require a cash deposit of one-third (33⅓%) of the price of the machine selected. To the balance we add an interest charge of only 7½% (1/6 in the £), and divide into ten monthly payments.

EXAMPLE.



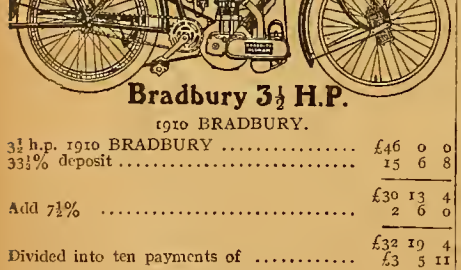
1910 V.S.

3 h.p. Two-speed V.S.	£65	0	0
33⅓% deposit	21	13	4
	£43	6	8
Add 7½%	3	5	0
	£46	11	8
Divided into ten payments of	£4	13	2



1910 MOTO-REVE.

2 h.p. Twin MOTO-REVE	£37	16	0
33⅓% deposit	12	12	0
	£25	4	0
Add 7½%	10	17	9
	£27	1	9
Divided into ten payments of	£2	14	2



Bradbury 3½ H.P.

1910 BRADBURY.

3½ h.p. 1910 BRADBURY	£46	0	0
33⅓% deposit	15	6	8
	£30	13	4
Add 7½%	2	6	0
	£32	19	4
Divided into ten payments of	£3	5	11

1910 ENFIELD.

2¾ h.p. Model 140 ENFIELD	£40	13	0
33⅓% deposit	13	11	0
	£27	2	0
Add 7½%	2	0	6
	£29	2	6
Divided into ten payments of	£2	18	3

OTHER MODELS SIMILAR TERMS.

EXCHANGES,
LOW CASH PRICES,
DEFERRED PAYMENTS

for any 1910 make of motor cycle.
(See opposite for address.)

MOTOR BICYCLES FOR SALE.

3½ h.p., long bars, h.b. control, 26in. wheels, pan seat, accumulator, fast machine; £10.—Baker, 86, St. James's Rd., Derby.

TRIUMPH, 1910, very fast, absolutely reliable, selling for no fault; £41, quick sale.—Vickers, Offley Grove, Newport, Salop.

1910 Model 3½h.p. T.T. Rex, automatic lubrication, Amac variable jet, as new; £32 cash.—Graham, 12, Spring Rd., Wrexham.

PHELON and Moore, 1909 model, with two-speed gear and free engine, splendid condition, complete with accessories; £42.—Moss, Wem.

3½h.p. Rex, low, perfect running order, new piston rings, pulley, coil, tyres excellent, dry cell ignition; £12, nearest offer.—Bayley, Horsehay.

P. and M. Motor Cycle, two-speed, magneto, new R.O.M. tyre back wheel, first-class condition; £38.—H. Marston, 542, New Chester Rd., Rock Ferry.

1908 Rex, 3½h.p., magneto, spring forks, Whittle belt, 1910 B. and B., adjustable pulley, perfect condition; £25.—Bakewell, Nottingham Rd., Alfreton.

MINERVA, 3½h.p., two-speed and free engine, Longuemare, Watawata, automatic stand, etc., in good condition.—Stevenson, Station Rd., Codnor Park, near Alfreton.

WHAT Offers?—1910 new Triumph, not ridden 100 miles, splendid condition, as received from works; owner going in for car.—5,061, *The Motor Cycle* Offices, Coventry.

5h.p. Midget Bicar, Sarolea engine, magneto, Amac carburetter, Druid forks, excellent condition, £28 10s.; 1909 4-cyl. 4½h.p. F.N., Shamrock studded tyres, equal to new, £29 10s.; 2½h.p. Triumph, new tyres, good condition, £10 10s.—Allen Bros., 75 and 77, Wellington Rd. South, Stockport.

1908 Twin Rex de Luxe, new 1909 back wheel, including Roc clutch and two-speed, handle starting, new Whittle, Bosch magneto, overhauled and guaranteed by makers, Cantilever seat, Middlemore's padded saddle, Amac h.b. control, Kempshall non-skid and Continental, powerful passenger machine, excellent condition; 29 guineas.—Hammond, Somercotes, Alfreton.

SECTION IV.

Nottingham, Lincoln, Leicester, Rutland, Northamptonshire, and Warwickshire.

PERFECTLY New 1910 Premier Motor Cycle, 3½h.p. single cylinder; £45.—Blackburn, Spalding.

N.S.U. Lightweight, Bosch magneto, spring forks, good condition; £16.—Birt Morris, Bourne.

1¼h.p. N.S.U., magneto, spring forks, V belt, new Dunlop back tyre; £14.—1, Dale St., Coventry.

2h.p. Dorman Lightweight Motor Cycle; £5, or exchange lady's cycle.—Auckland, Western Park Rd., Leicester.

2¾h.p. Clyde Motor Cycle, magneto ignition, good condition; price £12 10s.—Morrison and Co., Dover St., Leicester.

GRIFFON, 82 by 90, Chater-Lea, B. and B., coil, wants overhauling, nearly complete; £12.—41, Saxe Coburg St., Leicester.

TRIUMPH, 3½h.p., 1908, thoroughly overhauled, and as new; approval with pleasure; worth £35, our price £30.—Laytons', Bicester.

REX, 1907, 3½h.p., splendid condition throughout, Brown and Barlow carburetter, low and fast; best offer.—13, Ena Rd., Coventry.

4½h.p. Genuine Minerva, grey, magneto, spring forks, Mabon clutch, adjustable pulley, finest possible condition; £35.—Sibson, Bond St., Leicester.

TRIUMPH, 1909, perfect condition, little ridden, R.O.M., Palmer, Autoclipse, non-stop M.C.C. team trial.—Morrison's, Dover St., Leicester.

1910 Triumph, with free engine clutch, lamp, and horn, in perfect condition; £49 cash.—The Premier Motor Co., Ltd., Aston Rd., Birmingham.

ENFIELD 2-cyl. Lightweight, brand new, £30; Humber, 3h.p., chain drive, good condition, £8; Quadrant lightweight, £6.—Baines Bros., Gainsborough.

2½h.p. Clement-Garrard, plated torpedo tank, in good condition; also half-plate Lancaster Instantograph camera; what offers?—Miller, 22, Mowbray St., Nottingham.

DOUGLAS 2¾h.p. latest pattern 1910 motor cycle, only been used for demonstration purposes, in perfect condition, all accessories.—Wilson, cycle agent, Gainsborough.

DOUGLAS, king of lightweights, latest model, in stock; immediate delivery; get particulars from me before buying elsewhere.—Norton, ironmonger, Smithford St., Coventry.

LATEST 1910 Humber, £42; 3½h.p. Ariel, £37 10s.; Royal Enfield twin, Palmer cords, £37 10s.; slightly shop-soiled; exchanges wanted.—Evans, agent, 358, Stratford Rd., Birmingham.

2¾h.p. Excelsior, round brass tank, Longuemare, A Won tyres nearly new, Castle coil, Lycett belt, in good order, ready to ride away; £6 10s.—Mills, 7, Yew Tree Rd., Erdington.

1909 Twin Rex de Luxe, two-speed, new November, not ridden 500, tyres perfect, Continental front, Dunlop special back, accessories, and tools; £37 10s.—Horn, 30, West St., Leicester.

Money for Nothing.

We save you money on any purchases you make with us, whether it be for tyres, machines, accumulators, or, in fact, anything.

Compare our Prices.

TRIUMPH, 3½ h.p., 1909, Clincher studded tyres, Cowey indicator, only done 600 miles	£40
TRIUMPH, 3½ h.p., 1909, new rear studded Dunlop tyre, very fine order, May model	£38
TRIUMPH, 3½ h.p., 1907 model, 1908 cylinder and piston, very good order, magneto	£25
*TRIUMPH, 3½ h.p., 1908 model, almost new tyres, exceptionally fast	£33
F.N., 5-6 h.p., 1909 model, low built, four-cylinder, very good tyres, "purrs like a kitten"	£32
F.N., 2½ h.p., late 1909 model, two-speed, shaft drive, low built, magneto	£34
F.N., 1¾ h.p., geared pulley, low built, good order and condition, magneto	£17
ROC, 5-6 h.p., 1910 model, two-speed, brand new, Dunlops, magneto ignition. Offers.	
*REX, 3½ h.p., 1908 model, Amac B.C. carburetter, low built, very powerful, magneto	£28
*REX, 3½ h.p., 1908, good order and condition, magneto	£26
*N.S.U., 3 h.p., new 1908 model, magneto, Peter Unions	£25
*N.S.U., 1¾ h.p., lightweight, good tyres, good climber	£17
*TRIUMPH, 3 h.p., magneto, Palmers, grey finish, good running order	£19
*REX, 5-6 h.p., twin, low built, very fast, suitable for sidecar	£17
*FAIRY, 2 h.p., lightweight, twin-cylinder, very good order, recently overhauled	£12
MINERVA, 4½ h.p., twin, low built, torpedo tank, good order, and fast	£20
CLYDE, 2¾ h.p., magneto, good tyres	£10
*PEUGEOT, 5 h.p., twin, low built, grey finish	£19
SAROLEA, 5 h.p., Chater-Lea frame, torpedo tank, new Clincher Dreadnought studded tyre	£18
ZENITH, 3 h.p., Fafnir engine, two speeds, almost new	£16
ROC, 3½ h.p., 1909 model, two-speed, low built, very good order, magneto	£28

50/- deposit secures :

DAW, 3 h.p.	£10	CLYDE, 3 h.p.	£11
*DE DION, 2 h.p.	£11	*MINERVA, 1¾ h.p.	£7
*BARTER, 2¾ h.p.	£10	BOWDEN, 2 h.p.	£9
*QUADRANT, 1¾ h.p.	£9	*BUCHET, 2¼ h.p.	£12
*RIP, 2¼ h.p.	£7	*EXCELSIOR, 2¾ h.p.	£10
*DOWSON, 3 h.p.	£12	*MINERVA, 2 h.p.	£10

Balance 5/- weekly. Delivered upon first payment.

PRICE £5 5 0
(No extra charge on tyre prices.)

SPECIFICATION.—Double Cee springs, plated wheel, rustless spokes, best wicker basket (fit either side), double stove enamelled, fitted with either Continental or Hutchinson 2¾in. tyres, any size wheel.

NOTE.—Every tyre fitted is fully guaranteed by the makers. No clearance lines. Complete with mudguard Send for Lists. Trade Terms on Request.

MAUDES' MOTOR MART,

136, Great Portland Street,
LONDON, W.

Tele { phone: 552 Mayfair.
grams: "Abdicate, London."

Also at

Powell Street, HALIFAX.

Tele { phone: 433 National.
grams: "Petrol, Halifax."

MOTOR BICYCLES FOR SALE.

4h.p. 85 by 85 m.o.i.v. Chater-J.A.P., 6a frame, engine just overhauled by Prestwich, Bosch, Amac, reliable, speedy, fine hill-climber; £30, exchange twin.—41, Saxe Coburg St., Leicester.

GENUINE; going abroad.—2¾h.p. Lamandiere (Indian pattern), belt, very low; and 3½h.p. Humber, chain, both tremblers, perfect; £9 each, or first reasonable offers.—Stanley, Chapelbar, Nottingham.

EXCEPTIONAL Offer.—4½h.p. magneto Minerva, Roc two-speed, handle starting, h.b. control, spring forks, J.A.P. lubrication, studded Continentals; nearest £30; would consider lightweight and cash.—Robertson, Wigston Lane, Oadby, Leicestershire.

2¾h.p. Mitchell Lightweight, £9; 3½h.p. Campion-Minerva, £12; 3½h.p. F.N., engine quite new; twin-cyl. Peugeot, £19; 4-cyl. F.N., £16; all machines just overhauled, and in perfect running order; large stock of genuine bargains; repairs, accessories; trade supplied; exchanges.—Midland Garage, 1, Arkwright St., Nottingham.

BUYERS of Motor Cycles please write for description of the Osborne machine. Gives four distinct speeds, direct drive, has sliding back wheel, entirely removing all belt troubles without rider dismounting, Peugeot or J.A.P. engine, eccentric spring forks, removing all vibration, and producing no injury even if dashed against stone wall, no end thrust.—Osborne, Princess Wks., Lincoln.

SECTION V.

Norfolk, Suffolk, Cambridge, Huntingdon, and Bedford.

TRIUMPH, 1910 clutch model, in stock, Dunlops.—Crawley, St. Mary's, Bedford.

1908 Rex, 2¾h.p., magneto, little used, perfect; £18.—9, Kemball St., Ipswich.

2¾h.p. Kerry, vertical engine, low build, excellent condition, reliable; £9.—15, Ford End Rd., Bedford.

TRIUMPHS, 1910 models in stock, immediate delivery; £48 15s.—Crabtree's Motor Wks., Wisbech.

1910 Bradbury, new, in crate; first cheque over £40, sacrifice.—Warwick House, Bury St. Edmund's.

5h.p. Twin Chase, Chater-Lea frame, perfect condition, h.b.c.; £16.—A. Parker, 164, The Square, Dunstable.

1909 V.S., two-speed, 5h.p., excellent condition, grand sidecar machine, tyres Shamrock and R.O.M.; £47.—Evered, Alby Rectory, Norwich.

1910 Two-stroke Two-speed Scott, in really new condition and perfect running order; nearest £43 has it.—Wallis, 29, Hills Rd., Cambridge.

MOTOR Bike, 2½h.p. J.A.P., cylinder new, Palmer tyres, everything ready for road, engine perfect, take trailer 20 miles per hour; price £6.—Howkins, timber merchant, Bedford.

ALMOST new late 1908 6h.p. N.S.U., two speeds, free engine, magneto, high tension, spring forks, perfect order and condition throughout; £25.—Storey, Bridge St., Cambridge.

£15 10s.—4-cyl. F.N., grand puller, perfect condition, hums like a bee; £16, 3½h.p. Quadrant, fast, powerful, grand condition; £1 15s., rigid sidecar, with tyre.—102, Ballingdon, Sudbury, Suffolk.

2¾h.p. Werner, 1910, B. and B., handle-bar control, low, footrests, tyres as new, £10, bargain; also a Brown, Minerva, and Zedel for sale, offers wanted.—Stanley Cooper, Station Garage, Leiston, Suffolk.

NEARLY New 1909 plate clutch Triumph, J.A.P. automatic lubricator, Palmer cord tyres and tubes, not scratched or punctured, all in new condition; £44, no offers.—Motor, 70, Mawson Rd., Cambridge.

FOR Sale, 3½h.p. Rex, m.o.i.v., just had engine rebushed, new valves and tappets, new tyres, belt, low seat, long handles, and h.b. control to Longuemare, very smart machine; £14 or nearest offer.—Apply, Bristowe's Garage, St. Peter's, Bedford.

FOR Sale, £14, or nearest offer.—3½h.p. Rex motor cycle (1906 pattern), h.b. control, Longuemare, engine just been re-bushed, new rubber studded covers on both wheels, new belt, long handles, and low seat-pillar.—Apply, Bristowe's Garage, St. Peter's, Bedford.

FOR Sale Cheap, 2¾h.p. m.o.v. Minerva, very low, new coil and belt and back tyre, any trial; also 3½h.p. Rex, B. and B., h.b. control, both in the very best running order; also Bowden belt rim brake and pair of X'll spring forks.—Photo and particulars, A. Moyse, Kessingland.

SECTION VI.

Worcestershire, Herefordshire, Radnor, Brecknock, Monmouth, Glamorgan, Carmarthen, Cardigan, and Pembroke.

3½-4h.p. Motor and Sidecar, Kelecom engine; stamp for reply.—Bold, engineer, Tondu, Glam.

N.S.U. Twin, 6h.p., £25; or exchange with cash for Triumph, 1909 or 1910.—Morgan, 67, Gilfach St., Bargoed.

4-CYL. F.N., 5-6h.p., magneto, 1908 model, footboards, good running order; £25.—Hopkins, New St., Ledbury.

1909 Triumph, engine recently overhauled, fitted Cowey speedometer, lamp, horn, numerous spares; £33.—9, Caegroes Terrace, Cadoxton, Neath.

The Halifax Motor Exchange

Largest Rex Dealers,

16, Westgate, HALIFAX.

'Phone, 766. Telegrams: "Perfection."

IN STOCK FOR CASH OR EXCHANGE.

"Don't write." Bring your machine and cash and we will treat you liberally.

1910 New 5 h.p. Twin INDIAN	£57
1910 New 3½ h.p. REX Speed King	£42
1910 New 5 h.p. REX Speed King	£45
1910 New 3½ h.p. Tourist REX	£48
1910 New 5 h.p. Tourist REX	£51
1910 New 3½ h.p. Tourist REX, plate clutch	£54
1910 New 5 h.p. Twin REX DE LUXE	£62

3½ h.p. Two-speed BROWN, chain drive, handle starting 26in. wheels	£25 0
1909 Two-speed Twin REX DE LUXE	£39 0
1909 5 h.p. Twin REX, spring forks	£32 10
1908 Twin Tourist REX, magneto	£26 10
5½ h.p. REX DE LUXE, clutch, handle starting, spring forks, Cantilever	£19 19
5½ h.p. Twin REX, spring forks	£16 10
1909 3½ h.p. Magneto REX	£29 10
1909 3½ h.p. REX Speed King, soiled	£32 10
1909 3½ h.p. Two-stroke REX TOURIST	£29 10
1909 3½ h.p. Two-stroke REX DE LUXE, Roc clutch, two speeds, as new	£36 10
3 h.p. Magneto CLYDE, good condition	£14 10
1908 3½ h.p. Magneto REX, spring forks	£24 10
1908 3½ h.p. N.S.U.' magneto	£22 10
2¾ h.p. PHELON AND MOORE, two-speeds	£22 10
3 h.p. BROWN, spray, Watawata	£9 10
3½ h.p. ROVER, trembler coil, 26in. wheels	£13 10
3½ h.p. Magneto QUADRANT, spring forks	£24 0
3 h.p. SINGER, V belt, high tension magneto	£15 10
3½ h.p. BRADBURY, 26in. wheels, non-skids	£15 10
1906 3½ h.p. REX, spring forks, M.O.V.	£15 10
4 h.p. ROC, magneto, clutch, rubber non-skids	£22 10
3 h.p. HUMBER, spray, powerful	£10 0
3½ h.p. WERNER, light, low, and powerful	£13 10
2½ h.p. SINGER, trembler coil	£5 5
2¼ h.p. BRADBURY, h.b. control, good order	£8 10
1½ h.p. MINERVA, wants attention	£3 0

Monster List on application.

Cash Offers and Easy Payments considered.

6 Brand New Twin REX DE LUXE, just delivered from makers, fitted with latest 1910 forks, magneto, carburetter, and other 1910 fittings, two speeds and free engine, and new art cane de luxe sidecar, with detachable fittings.

SPECIAL PRICE ..... £55.

Worth £20 more, and fully guaranteed.

SUNDRIES.

New 1910 de Luxe Sidecar	£5 17 6
New 1910 Rigid Art Cane Sidecar	£4 17 6
New 8ft. x 1in. Shamrock-Glo ia Belts per ft.	1/6
New 8t. and 8ft. 6in. x ¾in. Shamrock Gloria Belts per ft.	1/4
New Art Cane Sidecar Body	19/6
Motor Cycle Tubes, all sizes	6/6
New 26 × 2in. Clincher Ar Tyres	22/-
New 26 × 2in. 28 × 2in. and 28 × 2¼in. Clipper-Reflex Covers	17/6
New 26 × 2¼in. Clipper-Reflex Covers	20/-
Nsw 28 × 2¼in. Clincher Ar Covers	21/-
1909 Rex Spring Forks, with springs	19/6
1908 Rex Spring Forks, with springs	16/6
1904 and 1905 Rex Forks	12/6
New 20 amp. Fuller Accumulator	11/-
Forecar, with tyres, fit P. & M. Rex or Minerva	37/6
Lycett's Large Size, new	9/6
Rex Pattern Handle-bars, plated	6/6
Tubular Carriers, to fit all makes	4/11
Swan Neck Seat-pillars plated	4/2
New High-class Trembler Coils	14/6
New High-class Plain Coils	10/6
Harrison Back Rests, new, recommended	12/6
Price's Stands for 26in. wheels	5/9
Rushmore Pattern Lamps, mirror lens	15/11
Hollow Belt Drills, the best	1/6
"Forward" Adjustable Belt Fasteners	1/6
Double Twist Horns	4/6
Three-note Horns, large size	7/11
Magneto Cut-out, special type	2/6

MOTOR BICYCLES FOR SALE.

5h.p. Twin Sarolea, Lloyds fittings, B. and B. handle-bar control, accumulator ignition, in perfect working order; £18, or will take lady's and gent's push cycle as part.—Collier, 52, Somerset St., Abertillery.

SECTION VII.

Gloucester, Oxford, Buckingham, Berks Wilts, and Hants, and Channel Islands.

1908 Motosacoche, used for window show only; £21.—Figg, Fleet, Hants.

READING.—Latest model Triumphs for immediate delivery.—Julian's Motors, Ltd., sole district agents.

MOTOSACOCHE, in splendid condition, offered for £12 10s. 6d., bargain.—Parker, St. Giles', Oxford.

BROWN, 2¾h.p., excellent condition, new tyres; £10.—Apply, Motor Driver, Burnt House, Stubbington, Hants.

TRIUMPHS, 1910; delivery from stock; second-hand Triumphs taken in part payment.—Layton's, Bicester.

3½h.p. Midget Bicar, very low, adjustable pulley, splendid condition throughout; £16.—Simpson, jun., Sandhurst, Berks.

MINERVA Twin, 4½h.p., M.O.V., spring forks, Advance pulley, perfect condition, tyres excellent; bargain, £14.—148, Wilson Rd., Reading.

PREMIER, 3½h.p., 1909-1910, Roc two-speed, R.O.M. tyres, powerful, suit sidecar; £34; owner going abroad.—Mr. Rowe, St. Aubins, Polygon Rd., Southampton.

1909 Motosacoche, in good order, tyres almost new, Druid spring forks, spare accumulator; £16 10s.—Rev. H. V. Waite, King Alfred's School, Wantage.

F.N., 1¾h.p., lightweight; this is a genuine cycle, the engine and magneto as new, spring forks, adjustable pulley, do 30 miles; price £19 10s.—T. Saw, Mill Rd., Chinnor, Oxon.

REX Tourist, 1909, 3½h.p., Continentals, first-class condition, horn, lamp, numerous tools and spares; £30, or exchange, 1910 Motosacoche and cash.—Evans, Cranmere, Cosham, Hants.

DOUGLAS, 1909, Model B, run under 800 miles, perfect condition, lamp, horn, spares; owner going abroad; £26 10s., or nearest offer.—Fleet Surgeon, 2, Pelham Rd., Southsea, Hants.

N.S.U., 2½h.p., twin cyls., magneto ignition, tyres Shamrock-Excelsior, rubber non-skid front, R.O.M. studded back, spring forks, complete with all accessories, used three months; £32.—Rose and Co., Castle Rd., Southsea.

MOTO-REVE, 1910, 2h.p., twin, magneto, Druid spring forks, Watawata, Continentals, adjustable pulley, in perfect running order; sole reason for selling, getting a higher powered machine; £30, or near offer.—H.B., Bapton Manor, Codford St. Mary, Wilts.

SECTION VIII.

Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

EAGLES.—Premier, 3½h.p., 1910, twin, brand new, slightly soiled; £43.

EAGLES.—N.S.U., 3½h.p., specially low built, very fast, magneto, spring forks, 26 by 2¼ Continental tyres; £20.

EAGLES.—Triumph, late 1907 model, had little use, excellent condition; £25 10s.

EAGLES.—N.S.U. 2½h.p. twin lightweight, 1909, Bosch magneto, M.O. valves, under-geared pulley; £25; see Brooklands results.

EAGLES.—N.S.U., 4h.p., twin, latest 1910 model, Bosch magneto, M.O. valves, two-speed gear and free engine, slightly used; £44.

EAGLES.—3½h.p. M.M.C., Chater-Lea, spring forks, B. and B. carburetter, handle-bar control, excellent condition; £12 10s.

EAGLES.—Indian, 5h.p., 1910 twin, Bosch magneto, Indian red finish; £42, as new.

EAGLES.—N.S.U., 3½h.p., magneto, spring forks, two-speed gear and free engine; £20.

EAGLES.—J.A.P., 2½h.p., Chater-Lea fittings, inclined engine, 26 by 2in. Peter Union tyres; £7 10s.

EAGLES.—Any of the above can be had on approval, deposit.

EAGLES.—We have a few brand new N.S.U.'s just delivered, finished in latest style; 3h.p., £25; 3½h.p., £31; 6h.p. twins, £40; two-speed gears, £5 15s. extra; exchanges entertained; deferred payments; inspection invited.

EAGLES and Co., High St., Acton.—N.S.U. West London District Agency, 1910 models from stock; liberal allowances for machines in part payment. Tel.: 556 Chiswick.

2¼h.p. Motor Cycle, new tyres; £5, bargain.—Sykes, 48, Battersea Park Rd.

DOUGLAS, 1910, Model C., for immediate delivery.—Rey, 5, Heath St., Hampstead.

2¾h.p. Kerry, good condition; £10, or offer.—Motor, 97, Green Lanes, Stoke Newington.

MOTOR BICYCLES FOR SALE.

BRADBURY, 3½h.p. models, 1910; £46.—Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., the low-built machine.—Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., hold a unique record in reliability trials.—Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., the champion hill-climber.—Bright and Hayles, Camberwell.

BRADBURY, 3½h.p., £46; liberal allowance for your old machine; get our price before ordering.—Bright and Hayles, 73, Church St., Camberwell. 'Phone 309 Brixton.

3½h.p. 1908 Brown, adjustable pulley, 1in. belt, Amac carburetter; £12.—Below.

2h.p. Humber, chain drive, splendid order; £6.—Hill, Norfolk Parade, London Rd., Romford.

NYE'S!—1910 Triumph, free engine clutch, as new, magnificent machine; £48.

NYE'S!—1909 Zenith, Gradua gear, spring forks, good order; £26 10s.

NYE'S!—1908 P. and M., two speeds, Bosch magneto; £35.

NYE'S!—1908 Fairy, Bosch magneto, nearly new machine, Druid spring forks; £16 10s.

NYE'S!—1908 twin Sarolea, Chater No. 6 frame, 2½ tyres, nice order; £21.

NYE'S!—1909 Humber, two speeds, nice order; £29.

NYE'S!—1908 Roc, two speeds, Bosch magneto; £25.

NYE'S!—1908 Motosacoche, nice order; £13 10s.

NYE'S!—1907 Phelon and Moore, two speeds; £20.

NYE'S!—69, Leather Lane, Holborn, London. 'Phone, 6299 Holborn.

HAMPSTEAD for Bargains.—Heath Street Motor Works, 5, Heath St. Tel.: 2678, P.O.

HAMPSTEAD.—1910 twin Royal Enfield, almost new, latest model, all accessories; £28.

HAMPSTEAD.—Humber, 2½h.p., requires slight repair, £2 10s. only; also Kerry, £8, 2½h.p.

HAMPSTEAD.—1910 Wolf Lightweight, only soiled three weeks old, all accessories; £26.

HAMPSTEAD.—1909 Moto-Reve, 2½h.p., splendid condition, all accessories; £24, bargain.

HAMPSTEAD.—1909 Triumph, splendid condition, all accessories; £34; one better, £35.

HAMPSTEAD.—2¾h.p. F.N., good condition, £10; 2½h.p. Kerry, £10, all accessories.

HAMPSTEAD.—1910 Indian (red), for immediate delivery; no extra for easy payment.

HAMPSTEAD.—3½h.p. Minerva, good condition, £10; also one, £12, all accessories.

HAMPSTEAD.—4-cyl. F.N., 5-6h.p., splendid condition, 1909, low frame; £23, bargain.

HAMPSTEAD.—Chater-Lea, No. 6, M.M.C., splendid condition, all accessories; £10.

HAMPSTEAD.—5h.p. Kerry, for sidecar work, good tyre, splendid order; £14.

HAMPSTEAD.—3½h.p. 1910 Kerry-Abingdon, almost new; £39, with accessories.

HAMPSTEAD.—3½h.p. Triumph, 1909, splendid condition, with all accessories; bargain, £35.

HAMPSTEAD.—1910 2½h.p. two-speed F.N.'s; £40; no extra for easy payments.

HAMPSTEAD.—1910 Rexes, all models in stock; no extra for easy payments.—Below.

HAMPSTEAD.—Kerry-Abingdon from stock; exchange or gradual payments taken; no extra.

HAMPSTEAD.—Douglas, 1910, latest model, from stock; 5 per cent. extra for easy payments.

HAMPSTEAD.—F.N., 4½h.p., latest model, handlebar control, condition splendid, with accessories; £22.

HAMPSTEAD.—Sidecar, best make, brand new, adjustable to any machine; £3 15s.

HAMPSTEAD.—Sole London Agents for Lincoln Elks, all models in stock; no waiting.

HAMPSTEAD for Moto-Reve Model A.; in stock; no waiting; no extra for easy payments.

HAMPSTEAD.—1909 3½h.p. Triumph, good condition, studded tyres; £34; all accessories.

HAMPSTEAD.—2¾h.p. brand new Zedel, No. 6 Chater-Lea low frame, incomplete; £12 15s.

HAMPSTEAD for latest 1910 new 4-cyl. F.N.'s; in stock, no waiting.

HAMPSTEAD for Triumphs, in stock, new free engine models and standards; no waiting.

HAMPSTEAD.—5h.p. Vindec Special, 1908, free engine, magneto, and spring forks; £26.

HAMPSTEAD.—1910 Douglas, almost new, with all accessories; great bargain, £33.

HAMPSTEAD for latest 1910 models, in stock (Triumphs, Indian), Premier, Douglas, Rexes, Humber, etc.; exchanges or gradual payments.—Rey, 5, Heath St. Tel.: 2676 P.O., Hampstead.

TEMPT ME

with your offers before removal day.

NEW MACHINES.

1910 3½ h.p. **PREMIER**, auxiliary exhaust..	£42 0
1909 3½ h.p. **REX** Tourist, shop-soiled	£35 0
1909 5 h.p. **REX** Tourist, „ „	£37 0

SECOND-HAND BARGAINS.

5 h.p. Twin **PEUGEOT**, h.b. control	£16 10
3½ h.p. **MINERVA**, h.b. control	£14 0
3½ h.p. **TRIUMPH**, extra good.....	£24 0
3½ h.p. 1908 **REX** Tourist, a beauty	£24 0
4½ h.p. four-cylinder **F.N.**, good	£19 0
3½ h.p. **N.S.U.**, magneto, h.b. control	£19 0
3½ h.p. 1907 **REX**, very good indeed	£16 0
3½ h.p. **REX DE LUXE**, two speeds, handle starting, magneto, h.b. control.....	£35 0
5-6 h.p. **REX DE LUXE**, Roc clutch	£19 0
3½ h.p. **CLYDE**, Bosch H.T. magneto	£16 0
1909 Twin **REX**, special, good	£35 0
Ditto, with 1910 carb. and magneto	£36 0
5 h.p. 1909½ **REX**, speed model	£35 0
3½ h.p. **QUADRANT**, spring forks	£19 0
1908 **N.S.U.** Lightweight	£19 0
3½ h.p. **REX**, magneto, h.b. control	£16 0
5-6 h.p. Twin **PEUGEDT**, magneto, etc.....	£30 0
1909 Twn-speed 6 h.p. **REX DE LUXE**, only done 400 miles	£44 0
5-6 h.p. Twin **REX** and Sidecar	£20 0
6 h.p. Twin **REX**, Roc, two speeds	£24 0
6 h.p. Twin **REX**, spring forks, 26in. wheels	£16 10

£3 down secures any of these. Balance 5/- per week:

2 h.p. **QUADRANT**.. £6 | 3½ h.p. **HUMBER**.. £10
3½ h.p. 1905 **REX** .. £12 | 3½ h.p. **REX** £9

£5 down secures any of these. Balance 6/- per week:

3½ h.p. 1906 **REX** .. £14 | 3½ h.p. Mag. **REX**.. £16
3½ h.p. 1907 **REX** .. £16 | 3½ h.p. Mag. **CLYDE** £16

FARRAR'S HALIFAX SIDECARS.

Stands out alone as a genuine and good Sidecar at a popular price.

Note where the front arm grips the centre of the sidecar, and compare this design with the lob-sided and unmechanical attachment adopted by some makers.

£4 17s. 6d., complete with best tyres. Twelve months' guarantee.

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5½ h.p. **REXETTE**, two speeds	£24 0
5-6 h.p. **HUMBER** Tricar, open frame	£26 0
8 h.p. **BEAUFORT** Car, four-seater	£40 0
5½ h.p. **O.T.A.V.**, nearly new	£50 0
5-6 h.p. **LITETTE** Tricar, water-cooled, Roc two-speed gear, handle starting, magneto ignition, a beautiful light tricar	£35 0
5 h.p. **BRADBURY**, two speeds, handle starting.....	£19 19

ODD BARGAINS.

Rigid Sidecar, 24in. wheel	£3 10 0
1910 B. & B. carburetters, new	£1 7 0
1910 Amac variable jet	£1 7 0
4/- allowed for old carburetter.	
2¾ h.p. Minerva Engine.....	£2 10 0
New type Magneto Cut-outs	2 6
8 h.p. Twin Rexette Engine, two speeds..£12	0 0
Premier Magnetos, new	£2 19 6
Clincher Tubes ..... post free	7 6
2 h.p. Fafnir Engine	£1 10 0

WANTED!
Good Motor Cycles. Cash Waiting.

Farrar's Motories,

SQUARE ROAD, HALIFAX.

MOTOR BICYCLES FOR SALE.

1910 Douglas Machines; immediate delivery from stock.—Below.

WOLF Lightweight, 1909 models; price from 15 guineas.—Hunt's, The City Motor and Cycle House, Newgate St., London, E.C.

2½h.p. Rex, in good order; £9, or offer.—H. Smith, 84, Wells St., Camberwell, London.

£7 10s.—3h.p. Fafnir, in good condition, ready for road.—51, Claremont Rd., Forest Gate.

3½h.p. Centaur, good condition; trial, deposit; £9. bargain.—2, Greyhound Rd., Kensal Rise.

KERRY, 3½h.p., perfect order, low, fast; £10.—V. Smith, 1, Burnham Terrace, Richmond.

2½h.p. Rex, magneto, h.b. control, new condition; £17 10s.—546, High Rd., Goodmayes.

2½h.p. Minerva, M.O.V., perfect condition; £7 15s., quick sale.—41, Ashford Rd., Cricklewood.

M.M.C., 3½h.p., with sidecar, £15; 3h.p. Bradbury, late 1908, £11.—Grey, Buckhurst Hill, Essex.

10h.p. Ariel, 2-cyl., live axle, good order; £27 10s.—27, Kingsbury Rd., Balls Pond Rd., Dalston.

2½h.p. Fairy Lightweight, Palmer tyres; £16, or offer.—Dougill, O.K., Woking Rd., West Byfleet.

2-2½h.p. Minerva, Palmer cords, adjustable pulley, low; best offer.—Singer, Henry Rd., Totteham.

INDIAN, 5h.p., 1910, not to be distinguished from new; £50.—Fisher, 6a, High St., Hampstead.

N.S.U., 4h.p., 1909, single-cyl., model de luxe; £28; in very good order.—Fisher, 6a, High St., Hampstead.

BRADBURY Agents for N.W. London.—Gardner, High St., Hampstead.

WHITTLE S.—Roc conversion set, fit Triumph, complete, two speeds, clutch, as new; £10 10s.

WHITTLE'S.—F.N., 4½-5h.p., 4-cyl., magneto, spring forks, nearly new, unscratched; bargain, £28.

WHITTLE'S.—F.N., 4½-5h.p., 4-cyl., magneto, spring forks, excellent order; cheap, £22 10s.

WHITTLE'S.—Bat, 3½h.p., spring frame, almost as new; great sacrifice, £18 10s.

WHITTLE'S.—N.S.U., 3½h.p., magneto, extra fast and reliable, grand condition; £16 10s.

WHITTLE'S.—Roc, 3½-4h.p., magneto, Roc free engine clutch, beautiful order; bargain, £18 10s.

WHITTLE'S.—Moto-Reve, late model, twin, magneto, spring forks, equal new; £22 10s.

WHITTLE'S.—Alcyon, 4-5h.p., twin, spring forks like new; extra cheap, £15 10s.

WHITTLE'S.—Minerva, 3½h.p., late 1907, m.o.v., magneto, Mabon clutch, good condition; £12 10s.

WHITTLE'S.—Bat, 3½-4h.p., spring frame; £13 10s., exchanges entertained.—Whittle's Motor Exchange, Earlsfield.

£8.—3½h.p. Rex, Longuemare, in good running order.—5, Oswin St., St. George's Rd., Southwark, S.E.

TRIUMPH, 3h.p., 1906, Shamrock tyres, ⅞ belt and pulley; £20.—Dr. Spreat, Whetstone, London, N.

BARGAIN.—5h.p. Peugeot, accumulator, footboards; £12.—St. Oswald's, Leigh Rd. West, Leigh-on-Sea.

2¾h.p. Minerva, light, low, footrests; £7, or offer.—Harvey, Hudson, and Co., next George, Woodford.

BICKLEY, 3h.p., Longuemare, Brooks, good tyres perfect order; sacrifice £6 10s.—C., 130, Brixton Rd., S.W.

3h.p. De Dion; £18, bargain; just overhauled, well fitted, all spares, etc.—Chauffeur, Aldenham House, Elstree.

BAT, 3½h.p., exceptional condition, overhauled, excellent Palmers; £15, or offer.—15, Algernon Rd., Hendon.

3½h.p. M.M.C.-Bat, spring frame, h.b.c., headlight Watawata, spares; £13.—93, Hessel Rd. West, Ealing.

2h.p. Minerva, low frame, in splendid order, Brooks saddle, stand, cyclometer; £8 10s.—14, Clapham Rd., S.W.

REX, 3½h.p., new May, 1909, splendid condition, Mabon clutch; £20.—H.C., St. Paul's Rd. Post Office, N.W.

3h.p. Quadrant, Chater-Lea frame, good condition; £10, bargain.—Emmett, Marlin Square, Abbots Langley, Herts.

2¾h.p. Minerva, excellent condition, new tyres, low; £12.—Wilton, Upper Mill Cottage, Southend, Catford, S.E.

1908 6h.p. N.S.U., Roc two speeds, magneto; £25.—22, Whitehall Mansions, Archway Rd., Upper Holloway, N.

BARGAIN.—2h.p. Zedel, F.N. carburetter, new tubes, spares, enamelled green; £4.—Otway, Church Walk, Leatherhead.

3h.p. F.N., magneto, S.D. belt, Davison tank, Matchless spring forks, all new; £15.—Wray, 553, Barking Rd., Plaistow.

1908 Minerva, 3½h.p., new tyres, in splendid running order; £9, lowest.—Lamberhurst, Priory Av., Southend-on-Sea.

MOTOR BICYCLES FOR SALE.

TRIUMPH, 1910, for immediate delivery, standard or free engine.—Rey, 5, Heath St., Hampstead. Tel.: 2678 P.O.

£9.—2h.p. Minerva, perfect order, smart machine; or exchange 3½h.p., cash adjustment; photo.—11, Argyle Rd., Ealing.

2½h.p. Featherweight Rex, 1908 model, magneto, splendid condition; £16.—A. G. Bishop, Market Sq., Rochford, Essex.

POWERFUL 3½h.p. Minerva, low, long bars, tyres as new; give any trial with sidecar; £12 10s.—377, Kingsland Rd., N.E.

BARGAIN.—3½h.p. Sarolea, Chater-Lea fittings, low, long bars, footboards, as new; any trial.—377, Kingsland Rd., N.E.

6h.p. Twin Antoine, C.A.V. magneto, perfect order, footboards, accessories, spares; £17.—29, Eccles Rd., Clapham Junction.

MOTO-VELO Lightweight, new two months ago, guaranteed perfect; 27 guineas.—Lee's Dairy, Queen's Rd., Watford.

4h.p. Roc, free engine, Bosch magneto, h.b. control, 2½ tyres, excellent condition; £18.—G., 47, Connaught Rd., Harlesden.

TRIUMPH, 1907, ridden 1,000 miles, Mabon clutch, lamp, spares; £30.—Stafford, Hamstel Rd., Southchurch, Southend-on-Sea.

PHELON and Moore, 3½h.p., two-speed, 1908, all 1909 fitments, in new condition, guaranteed; £33.—41, Ashford Rd., Cricklewood.

TRIUMPH, 3½h.p., h.b. control, new engine this year, Whittle belt, good condition; £26.—Russell, 8, Latymer Rd., Edmonton.

MINERVAS.—2½h.p. £8 10s., and 3½h.p. £14; must sell one, good order.—Lambert, 20, Westbourne Terrace North, Paddington.

3½h.p. Rex, handle-bar control, low, long bars, good climber; any trial given; £11.—Rice, 30, Caldecot Rd., Coldharbour Lane, S.E.

FREE Engine Triumph, 1910, in use few weeks, changed for T.T. model, perfect; £50.—128, High Rd., Tottenham. Exchanges.

3½h.p. N.S.U., all latest improvements, as new; £20.—128, High Rd., Tottenham.

F.N., 2½h.p., two-speed, shaft drive, footrests, unscratched, new January, run 300 miles; £33 10s.—337, Oxford St., W.

4½h.p. Twin Minerva, 1909; nearest £20 accepted.—8, Mayfield Place, Eastbourne (particulars, stamp).

3½h.p. Kerry, two speeds and free, Palmer tyres, coach body, splendid condition; £15.—8, Netherbury Rd., South Ealing, Middlesex.

PRACTICALLY New 5h.p. Peugeot, built by Genn, exceptionally fast; any trial; £26.—Aldington, 59, Haydon's Park Rd., Wimbledon.

2¾h.p. Kerry, Longuemare, low seat, long handle-bars, speedy machine, pedals, lens mirror lamp; £10.—12, King St., Twickenham.

3½h.p. Brown, Bosch, B. and B., h.b. control, rubber studded, butted back, and spares; £18.—43, Barkworth Rd., Old Kent Rd., S.E.

3½h.p. Twin Peugeot, condition new; £18; appointment any time.—Clark, 39, Buckingham Mansions, West End Lane, Hampstead.

2½h.p. Rex Lightweight, Bosch magneto, 26 by 2¼ rubber studded, condition throughout like new; £20.—28, Burgate, Canterbury.

3h.p. Triumph, magneto, good tyres, all accessories, thoroughly reliable machine; £17.—E. Whitaker, 11, Peckham Grove, Camberwell, S.E.

3h.p. Givaudan, m.o.v., low, spring forks, Longuemare, long bars, two belts, good tyres; sacrifice £9 15s.—Gallop, 480, Garratt Lane, Earlsfield.

2½h.p. Twin Lightweight, in splendid working order, condition as new; accept £13.—Apply, F. Mathias, 76, Battersea Rise, London, S.W.

4½h.p. Twin Bradbury, re-enamelled, re-bushed, new pistons, etc., splendid condition; £15 10s.—T. Suter, 107, Bruce Grove, Tottenham, N.

4-CYL. F.N., two speeds, cream enamel, practically new; cash, or exchange tricar, Riley preferred.—Earl, 39, Park Lane, Newington Green, N.

F.N., 1908, 4-cyl., 4½h.p., perfect condition, magneto, spring forks, horn, lamp, tools, spares, butt-ended tubes; £21.—47, West Hill, Wandsworth.

2¾h.p. Minerva, recently overhauled, good tyres, brakes, and stand, long handle-bars, good hill-climber; cash £12 10s.—23, West Hill, Winchester.

2¾h.p. Minerva, h.b. control, tyres nearly new, in good condition, and in good running order; bargain, £12.—159, White Horse St., Stepney.

4h.p. Twin Werner, very low and fast, like new, Palmer cord tyres; a bargain, £17 10s.—Davies, Ailsa Tavern, St. Margaret's, E. Twickenham.

3½h.p. Humber, belt drive, Dunlops, inclined engine, in splendid order and condition; £12, near cash offers considered.—28, Burgate St., Canterbury.

ROC, Two-speed, 4h.p., free engine, magneto, Druid spring forks, as new; any trial; £29 17s. 6d., bargain.—Sinus, Causeway, Teddington, Middlesex.

WE ARE THE PEOPLE for RIGHT PRICES AND PROMPT DEALS.

THE PRICE IS UP

BUT QUALITY'S RIGHT.

TYRES.

BRAND NEW MOTOR CYCLE COVERS. Beaded Edge.

26 × 2in. REFLEX-CLIPPERS	17/6
28 × 2in. " "	17/6
28 × 2¼in. " " fit 26 × 2in.	17/6
24 × 2¼in. " "	17/6
28 × 2¼in. CLINCHERS	17/6
26 × 2¼in. "STANDARD," best make	27/6

MISCELLANEOUS.

Armstrong Typewriter, in proper order, a bargain	£3 10
New XL'All Spring Forks	13/6
Low Tension Magneto, good order	25/-
Low Tension Magneto, good order	21/6
Minerva Spring Forks	29/6
New Lycett's Saddle, large size	10/3
New Tool Wallets, four-strap, with tool roll	5/11
Forecarriage, with tyres and seat	55/-
Harrison's Patent Back Rests	12/6
Six-cylinder H.T. Magneto	£6 10
Bosch Plugs post free	3/6
Belt Drills, screw down	1/4
"Forward" Adjustable Fasteners	1/6
New Midget Accumulators	8/9
Vim Rim Brakes, new	7/6
Handle-bars, Rex pattern, plated, drop ends	6/-
Cork Handle-bar Grips post free	1/-
1908 Rex Spring Forks, second-hand	25/-
1909 " " "	29/-
New Plain Coils, best makes	10/6
New Trembler Coils, best makes	15/-
F.N., Longuemare, etc., Carburetters, second-hand	4/6

SELECTION from our STOCK of MACHINES.

1907 4 h.p. ROC, clutch, etc.	£24 0
1909 3½ REX de LUXE two-speed etc.	£36 15
REX 1909 Twin Tourist, low, very good	£32 10
REX 1909 3½ h.p. Tourist	£29 10
REX 1909 Speed King	£32 10
REX 1908 Twin, very speedy	£27 10
N.S.U., 3½ h.p., magneto, rin. belt	£21 0
REX 1907 Twin	£16 0
BROWN, 3½ h.p., two-speed and free, M.O.V., good	£25 0
P. & M., 2¾ h.p., two-speed, very low	£22 0
CLYDE, 3 h.p. magneto, very cheap	£13 15
BROWN, 3 h.p., special engine	£10 10
ROVER, 3½ h.p., M.O.V., spring forks	£13 15
BRADBURY, 3 h.p., well and hearty	£15 5
MINERVA, 2 h.p., wants a home	£8 15
ANTOINE, 2¾ h.p. very good condition	£8 10

Now in **£57 5 H.P. TWIN INDIAN.** Stock

CLYDE, 3 h.p., magneto, M.O.V.	£15 0
SINGER, 3 h.p., magneto, good belt drive model	£16 10
REX, 3¾ Genuine, 1906 M.O.V. etc.	£15 0
WERNER, 3½ h.p., easy starter	£12 15
HUMBER, 3 h.p., clutch, 26in. wheels	£12 10
BRADBURY, 3 h.p., extra good	£14 0
2¾ h.p. MINERVA, good order,	£11 15
BARTER 2¾ h.p. requires attention	£6 0

RUBBER BELTING

BY BEST MAKER. ¾in., 1/4,—⅞in. 1/7,—1⅛in. 1/9, 1in. 2/- per foot. 1¼in., 2/4 per foot.

LARGE STOCK OF LAMPS (from 7/6, separate generator.)
DOUBLE TWIST HORNS (5/3), 3-note (7/11), and a LOT of other things.
BUT SEND FOR LIST OF SUNDRIES.

Collier's Motories,

WESTGATE, HALIFAX.

MOTOR BICYCLES FOR SALE.

T.T. Triumph, 1910, and other models in stock; second-hand machines taken in part payment.—Stamford Hill Motor Co., 128, High Rd., Tottenham.

BRADBURY, 1910, free engine and roadster models in stock; second-hand machines taken in part payment; cash or terms.—Stamford Hill Motor Co., 128, High Rd., Tottenham.

HUMBER 1910 two-speed and roadster models in stock; second-hand machines taken in part payment; cash or terms.—Stamford Hill Motor Co., 128, High Rd., Tottenham.

F.N., 4-cyl., magneto, spring forks, just overhauled, in excellent order; £23.—128, High Rd., Tottenham.

3½h.p. Rex, spring forks, 1910 h.b. Amac, low built, excellent condition; £13.—128, High Rd., Tottenham.

2½h.p. J.A.P., low built, 26in. wheels, F.N. carburetter, perfect order; £9.—128, High Rd., Tottenham

FAFNIR, 3h.p., Chater frame, spring forks, in beautiful condition, headlight, hooter, and all spares; £13.—B. Treby, 6, Richmond Rd., Ilford.

3¼h.p. Rex, m.o.v., Longuemare, adjustable pulley, spring forks, Dermatine, rebushed, new rings; £12 10s.—37, Armitage Rd., East Greenwich, S.E.

2½h.p. J.A.P., Chater-Lea fittings, Palmer tyres, spare belt, tools, fast, low built machine; 10 guineas, a bargain.—J. Taylor, Ingleside, Hanwell, London, W.

CRIPPS Cycle and Motor Co., 24-28, Woodford Rd., Forest Gate, London, E., have the following machines, all guaranteed; exchanges on any model.

1½h.p. Magneto Motosacoche, late 1909, in splendid order, very light, used less than 1,000 miles; £23.

MOTOSACOCHE, 1908, accumulator model, used for demonstrations, in grand condition; £18.

1¾h.p. Lightweight F.N., magneto, geared pulley, run less than 1,000 miles; £20.

4½h.p. Minerva, 1908, accumulator model, very low, footboards, £20; forecar for same, £4.

3½h.p. Rover, with art cane forecar attachment, all in excellent running order and condition; £15.

3½h.p. Peugeot, engine new last August, had very little use, low, short frame, £16; forecar for same, £4.

SEVERAL Other Machines at prices from £6; any type of machine built to customers' own requirements; look out shortly for our announcement of a 2¼h.p. J.A.P. lightweight model weighing about 90 lbs., 6h.p. w.c. engine, 95 by 110, £9.

MUST Sell.—Quadrant, 3½ to 5h.p., new belt, rubber studded tyres, all spares; sacrifice £20, or near offer.—Nield, 81, Burgoyne Rd., Harringay.

PEUGEOT, 3½h.p., Clincher studded butted tubes, nearly new, Shamrock-Gloria belt, in perfect running order; £16.—Herbert, Marden Ash, Ongar.

3½h.p. Kerry, Chater, Mabon clutch, Longuemare; £9; push bike taken as part payment.—32, Cumberton Rd., L.C.C. Estate, Lordship Lane, Tottenham.

KERRY-ABINGDON Motor Cycles, immediate delivery from stock; exchanges entertained.—Durham Motor Wks., opposite station, South Ealing, W.

6h.p. Advance, twin, magneto, very powerful machine, in perfect condition, take sidecar; a bargain at £30.—Apply, Pond, 349, West End Lane, Hampstead.

£11.—Kerry, 3½h.p., free engine, suitable sidecar, powerful machine, tyres good, accumulator, Longuemare, running order.—Bond, 145, Valetta Rd., Acton.

3½h.p. Peugeot-Chater, A1 condition, very fast, new accumulator, cheap; can be seen at 133, High Barnet, or write, Cooper, 8, Lancaster Rd., New Barnet.

TWIN Premier, 1910, as new, Dunlop studded tyres, spring forks, been ridden 800 miles; great bargain, £40.—Apply, Pond, 349, West End Lane, Hampstead.

1909 1¾h.p. F.N., magneto, handle-bar control, adjustable pulley, spring forks, guaranteed perfect; £16 10s.—White, 105, Holmesdale Rd., South Norwood.

AUTO, 4½h.p., 92 bore, 90 stroke, new piston, rebored by Laystall Co., B.B., bar control, plain coil, 2½in. Palmers, etc.; £11.—L., 142, Shrewsbury Rd., Forest Gate.

ARIEL, 3h.p., spring forks, in good going order; would take light sidecar or push cycle part payment, or sell £8 10s.—23, Grand Parade, Archway Rd., Highgate.

V.S., 5h.p., two-speed, Truffault forks, 1908, bought new summer, 1909, h.b. control, little used, perfect; £35, lowest.—Warren, 53, Gwendwr Rd., West Kensington.

DOUGLAS, King of Lightweights.—London depot, 336, Goswell Rd. (near Angel Tube Station).—Tel.: 3269 City. Machines on view, trials arranged; personal attention and advice, by J. V. Robinson, London manager.

KERRY-ABINGDON, 1910, delivered Whitsun, B. and B., tools, horn, stand, everything latest, first-class, climbs anything, unscratched and as new; cash offers, or push bike and cash.—155, Brockley Rd., Brockley.

MOTOR BICYCLES FOR SALE.

3½h.p. Triumph, 1907-8, Mabon clutch, perfect order, ridden under 3,000 miles, spares, only wants seeing; £25.—L., Brooklands, Dawley Rd., Harlington, Middlesex.

4h.p. Antoine, magneto, h.b. control, powerful, low, thoroughly overhauled, tyres little worn; genuine bargain £15 10s.—23, South Hill Park Gardens, Hampstead, N.W.

IF You Want Bargains in second-hand motor cycles you can get them at Wauchope's.—Wauchope's, 9, Shoe Lane, Fleet St., London, E.C., just off Ludgate Circus.

3½h.p. Brown, 1909 cylinder, piston, Bosch, Amac, new tanks, Whittle, particulars post; exchange 5-6h.p. F.N., cash adjustment, sell £19.—64, St. John's Park, Blackheath.

REX Twin de Luxe, Roc clutch, magneto, overhauled, re-enamelled and plated, spares, accessories; £23, or good 3½h.p. and cash.—Vialls, 20, Elmwood Rd., Croydon.

2¾h.p. Minerva, splendid condition, spring forks, new Michelin tyres, complete with watch, spares, and all accessories; £18, or near offer.—Cherry, 61, Levis Rd., Balham.

3½h.p. Minerva, genuine standard model, spring forks, handle-bar control carburetter, condition and appearance as new; genuine bargain, £17.—Apply, 34, Arthur St., Gravesend.

ROC, 4h.p., single, two speeds, spring forks, magneto, 1909 machine, in splendid condition; cost 48 guineas, accept £33, or nearest offer.—Schuver, 15-16, Farringdon St., London.

2¾h.p. F.N., Bosch magneto, spring forks, spare valves, tyres, machine nearly new, accessories; £18; after five; great bargain for quick sale.—Pooley, 27, Bedford Rd., Clapham.

CLEMENT, 2½h.p., cob Chater frame, long handlebars, new carburetter, accumulator, belt, luggage carrier, stand, tyres as new; £9.—Clement, 92, Drakefell Rd., New Cross, S.E.

3h.p. Fafuir-Chater-Lea, B. and B., Fuller coil, two P. and R. accumulators, spares, just overhauled and enamelled; £12; seen by appointment.—F., 6, Fulham Park Gardens, S.W.

3h.p. Rex, new Continental, 40 amp. accumulator, Watawata, tank, 1910 B. and B. carburetter, perfect, and ready for the road; £13, lowest.—S. Blenkarn, 58, Cromwell Rd., Beckenham.

F.N., 2½h.p., in good condition throughout, new Dunlop back, and Shamrock-Gloria belt, also new accumulator and spare, fast, reliable machine; £12.—W. Elce, 47, King Edward Rd., Romford.

CROYDON.—Kerry-Abingdon, this famous machine in stock for immediate delivery; your old machine taken part payment; second-hands wanted of all makes.—Central Motor Co., Croydon.

3½h.p. Kerry Bike, new R.O.M. on back, 1910 B. and B., spring seat, long bars, separate generator, lamp, horn, all ready for road; £12 10s.—Seen any time at 58, Finsbury Rd., Wood Green.

2h.p. Minerva, Bosch magneto, Amac h.b. controlled carburetter, adjustable pulley, Michelin and Continental tyres, Riche tubes, low, spares, splendid condition; £10 10s.—159, Queen's Rd., Dalston, N.E.

3h.p. Chater-Lea-Fafnir, low seat, long bars, Palmer tyres as new, spring forks, recently enamelled and lined, in splendid condition; inspection invited, any trial; £15.—Saymour, 131b, Plumstead Rd., Woolwich.

TRIUMPH, 1910, free engine, as new, 700 miles, guaranteed perfect, steel studded R.O.M. back; £45, or complete with Cowey speedometer and lamp £50; buying car; cash.—Tooth, Guy's Hospital, London.

KERRY, 2¾h.p., new R.O.M. non-skid and new Dermatine belt, Longuemare carburetter, accumulator and Bassee-Michel coil, accessories, splendid hill-climber; £10; view by appointment.—West, 20, Drive, Walthamstow.

3½h.p. Brown Motor Cycle, fitted with two-speed gear, chain drive, M.O.V., magneto ignition, in first-class condition and running order, fully guaranteed; £22 10s.—At Wauchope's, 9, Shoe Lane, Fleet St., London, E.C.

CLARENDON, 3h.p., just rebushed, spring forks, low spring seat, £7 10s.; Fafoir, 3h.p., two speeds, free engine, chain drive, £11 10s.; both B100 saddles, Voltoo coils; any trial.—Webber, 33, Alfred Rd., Acton.

3½h.p. Min ar: Built 1908 Machine, magneto, spring forks, L. and B. carburetter, tyres sound, plating and enamel like new, Autoclipse lamp, all in good order; price £14.—Harris, Primrose Villa, Prior St., Greenwich, near S.E.R.

2¾h.p. Chase, Zedel, Longuemare, accumulator, Dunlops, Dermatine, low, fast, new condition, £12; two new Continental belts, 6ft. 10in. by 2in., 5s.; 7ft. 4in. by 2in., 6s. 6d.; leather belt, 7ft., by 2in., 4s.—W. Bates, Richmond Rd., Staines.

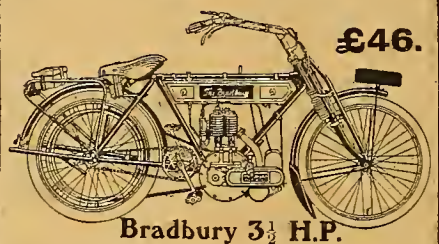
3½h.p. Rex (1908, late), new condition throughout, magneto, very powerful, B. and B. carburetter, handle-bar control, Hygienic saddle, low frame, expensive head lamp, back carrier, etc.; bargain, £22.—Blacker, 27, High St., Wealdstone, Middlesex.

LADY'S 1910 1¾h.p. Motosacoche, magneto, Druid forks, three-speed pedalling gear, Whittle, 160 miles to gallon, practically new; cost £48, sacrifice 30 guineas; buying A.C.—Newbury, 12, Conway Rd., Southgate. N. Telephone, Palmer's Green, 219.

London to Edinburgh TRIAL.

Success of the

BRADBURY



£46.

Bradbury 3½ H.P.

Only Six Riders of the Bradbury entered, but they were all successful, and have been awarded

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JUNE 11th.—MANCHESTER M.C. HILL CLIMB, SINGLE-CYLINDER CLASS:

Fastest Time, Mr. P. Platt.

JUNE 11th—NORTH-WEST LONDON M.C.C. HILL CLIMB, CLASS 2:

1st Fastest Time of Day, Mr. W. Cooper.

JUNE 12th—WALTHAMSTOW M.C.C. 100 MILES RELIABILITY TRIAL NON-STOP RUN:

Gold Medal, Mr. W. Cooper.
Gold Medal, Mr. A. T. Stanton.

Catalogue and Name of Agent on application to

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YATES' Motor Cycle Exchange, Cavendish Place, Eastbourne.—Everything for the motor cyclist; tyres, accessories, garage, repairs; also first-class apartments or board residence, terms moderate; agents for Rex, Vindec, Ariel, Bat, etc.—'Phone, 981.

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STERLING'S, 230, Clapham Rd., Stockwell.—Triumph, 1909, free engine model, £38 10s.; Triumph, 1909, standard, as new, £35; Triumph, 1907, handle-bar control, adjustable pulley, all accessories, £25; V.S., 1910, 5h.p., standard, only run 100 miles, £48; Triumph, 3h.p., magneto, spring forks, all accessories, £21; 1910 F.N.'s in stock; 1910 Bradburys in stock; new rigid sidecars upholstered, £3 12s. 6d.—Sterling's, 230, Clapham Rd., Stockwell. 'Phone, 1730 Battersea. Tel.: Autobike, London.

SECTION IX.

Somerset, Devon, Dorset, and Cornwall.

DOUGLAS, 1910, new June 1st; £35; buying sidecar machine.—Percy, Brunswick, Tiverton.

5½h.p. Rex Twin, magneto, new non-skid tyre, complete with stand, etc.; £25.—Yandle, Ilminster.

3½h.p. Minerva, magneto, 1909, new belt, new rear tyre, stand and carrier, Mabon free engine clutch, spring forks; £30.—Yandle, Ilminster.

3h.p. Quadrant, new non-skid tyre, stand and carrier, lamp, etc., complete; £10 10s.—Yandle, Ilminster.

N.S.U., 4h.p., single-cyl., model de luxe, as new, not done 100 miles, 1910 model; approval; £38.—Reynolds, Broadwey, Dorset.

3½h.p. Quadrant, spring forks, excellent condition throughout, good climber; £16, or nearest.—Upsall, Myrtle Villa, Torquay.

WERNER, 2¾h.p., recently overhauled, splendid condition, low, new tyres; bargain, £12 10s.—Postmaster, Stoke Canon, Devon.

3½h.p. White and Poppe, Chater-Lea, spring forks, upholstered pan seat, engine as new, guaranteed condition, suitable for sidecar; £17, or offers.—Radford, Pitt, Ufculme.

MOTOR Cycle, fitted with 4½h.p. J.A.P. engine, Longuemare carburetter, steel studded unpunctured tyres, less engine pulley; £14 for cash.—Apply, H. C. Pinckney, Estate Office, Tiverton, Devon.

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SECTION X.

Scotland.

TRIUMPH, October, 1907, Mabon clutch, in excellent running condition; £25.—Cren, Dingwall.

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SCOTLAND'S Largest Motor Cycle Firm.—Rex, V.S., Indian, Moto-Reve, Phelon and Moore, Zenith, Douglas, Roc, Griffon; we stock all these, and can supply any other make.—Alexander's Motor Exchange, Lothian Rd., Edinburgh.

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TRICARS FOR SALE.

6h.p. Quadrant Carette; £18.—Bain, 56, Miller St., Hamilton.

BAT Tricar, free engine; £20, or motor cycle and cash.—Webb, Glasbury, Redditch.

REX Triette, 2-cyl., spring seat, splendid value; £17 10s.—68, Vanderbilt Rd., Earlsfield.

MINERVA Tricar, 3½h.p., in perfect condition, with spares; £15.—Dunkley, Flore, Northants.

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9h.p. Eagle, De Dion engine, climb anything, very fast; twin bike part; £40.—Needham, Shalesmoor, Sheffield.

5½h.p. Rexette, two speeds, wheel steering, in thorough good order; £20.—London General Motor Car Co., Sutton.

4½h.p. Open Frame W.C. Wheel Steering Tricar, three speeds, perfect order; £20, offers.—A. Harden Hanastreet, Kent.

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